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ABSTRACT

Two suites of geomagnetic field models were generated in response to a request from Dr. David Chamberlain of Los Alamos Laboratories at White Sands Missile Range in New Mexico concerning Strategic Defense Initiative (SDI) research. The first suite, denoted as the GSFC(5/89-X) series, is a progression of five models which incorporate MAGSAT data and data from a sequence of batches as a priori information. The batch sequence is: post 1979.5 observatory data, post 1980 land survey and selected aeromagnetic and marine survey data, a special White Sands area survey by Project Magnet with some additional post 1980 marine survey data, and, finally DE-2 satellite data. These models are of 13th degree and order in their main field terms and degree and order 10 in their first derivative temporal terms. A first degree model for the external field with terms proportional to Dst, is included. The second suite, denoted as the GSFC(4/89-X) series, consists of four models based solely upon post 1983.5 observatory and survey data. They are of degree/order 10 in main field and 8 in a first degree Taylor series. Certain models also include three vector biases for each observatory where possible. The models in this suite differ to the extent that these biases were either not modeled, applied but not adjusted, or applied and adjusted. A comprehensive error analysis was applied to both series, which accounted for error sources such as the truncated core and crustal fields, and the neglected Sq and low-degree crustal fields. Comparison

of the power spectrum of the MGST(10/81) model (Langel and Estes, 1982) with those of the GSFC(5/89-X) series shows good agreement, which attests to the validity of the modeling technique and the data used. Except for model 5, the GSFC(5/89-X) series agrees reasonably well with the IGRF85 model, a test that propagation of the MAGSAT model to 1985 is not badly in error. However, discrepencies in secular variation coefficient differences suggest a small possibility of systematic error in the DE-2 data. Inter-comparison of the GSFC(4/89-X) power spectra seems to imply that the inclusion of observatory biases generally reduces the level of high frequency noise introduced to the system, even over the case in which a comprehensive error analysis is incorporated. Finally, a comparison between the power spectra of the two series reveals the need for additional data, such as Magsat, to supplement that of observatories and surveys in order to establish the baseline or static field, and the need for adequate model expansion to negate the effects of signal aliasing.

1. Introduction

Two series of geomagnetic field models were produced in May of 1989 at Goddard Space Flight Center (GSFC) for Strategic Defense Initiative (SDI) research at White Sands Missile Range in New Mexico. The first series utilized a Magsat a priori model to fix the model fields at 1980 and to provide a basis for determining observatory biases (Langel et al., 1982). The second series did not incorporate Magsat data, but was restricted to post 1985 data. The two classes of models allow investigation of the value of propagating the very accurate field description from Magsat data nearly ten years into the future versus the accuracy of using only data nearly cotemporaneous with the model epoch. These models were undertaken at the request of Dr. David Chamberlain of Los Alamos Laboratories for use in a particle beam experiment. At the same time, they were of interest as a means of exploring the properties of a newly upgraded observation data set and as an opportunity to explore the differences between models derived with somewhat different assumptions and procedures.

2. The GSFC(5/89-X) Series

The first series consists of a sequence of four models, each of which is obtained by reducing a new batch of data from a particular source while using the model resulting from the previously reduced

batches as both the starting and the a priori model. The series is denoted by GSFC(5/89-X), where X indicates the sequential number of the model.

Magnetic observatory measurements made after 1979.5 were processed in the first batch, which resulted in the GSFC(5/89-1) model. The GSFC(5/89-2) model was obtained by reducing all post 1980 land and selected aeromagnetic and marine survey data, with respect to the GSFC(5/89-1) model as a priori information. Because model accuracy was essential at the White Sands location, a special Project Magnet aeromagnetic survey of the area was made in the spring of 1989. The survey consisted of over 180,000 actual vector measurements, which were decimated and appropriately weighted for inclusion in the model. This survey, together with the remaining post 1980 marine survey data, comprised the third batch, which used the GSFC(5/89-2) model as an a priori estimate, giving the GSFC(5/89-3) model. Finally, 5100 scalar measurements made between 1981 and 1983 by the Dynamics Explorer-2 satellite, DE-2, were processed with the GSFC(5/89-3) model as a priori. This final model is the GSFC(5/89-4), which reflects all the magnetic data included in the series.

In an attempt to produce as accurate a field model as possible over the White Sands Missile Range, a regionally biased model, denoted as GSFC(5/89-5), was also generated. It used the GSFC(5/89-3) model as a priori while reducing for a second time both the Project Magnet White Sands survey and the Tuscon observatory data, since it is in close

proximity. Hence, these data are weighted heavily in the resultant model.

The parameter space of the models is comprised of a 13th degree and order spherical harmonic expansion (195 terms) for the internal magnetic field, with an associated first degree Taylor series temporal expansion over the first 10 degrees (120 terms), a 1st degree and order spherical harmonic expansion (3 terms) for the external magnetic field, and four disturbance storm time (Dst) terms, for a total of 322 model parameters. When observatories provided three magnetic field components for three or more years, then three vector biases were modeled, which account for local crustal and induced fields (Langel et al., 1982; Langel, 1987).

The Magsat satellite supplied over 55,000 high-accuracy scalar and vector magnetometer data concentrated near the year 1980 as a basis for the model used as a priori for the GSFC(5/89-1) model (Langel and Estes, 1985). Since the model epoch for the series is 1980, the Magsat data provide a stiff constraint on the static terms of the model. Hence, the major effects of the other data sources are adjustments in the temporal terms. No a priori information was used for observatory bias parameters in the GSFC(5/89-1) model, but biases (listed in Table 1) from the GSFC(11/87) model (Langel et al., 1988a), based on DE-2 satellite data at 1982, were used as the starting model.

3. Observatory Data

Because magnetic observatories provide measurements at stationary locations through time, they are particularly useful in resolving the temporal change in the magnetic field. Data from 196 observatories, in the form of annual means centered on half years, spanning the years 1979.5 to 1989, were included in the series of models. The time spans for the individual observatories are listed in Table 1. A total of 3835 magnetic field components were measured over this time by the various observatories, which include 131 X, 131 Y, 1266 Z, 1149 D, 4 I, 1146 H, and 8 B components. These were converted to 1252 X, Y, and Z components for processing. Vector biases were determined for 165 of the observatories.

The uncertainty estimates (standard deviations) assigned to the observed X, Y, and Z components are listed in Table 1 for each observatory. Effects of unmodeled field sources, such as the neglected crustal and Sq fields, and the truncated core field, are accounted for in the measurement weighting scheme by use of the correlated weight matrix method developed by Langel et al. (1989) and summarized in Section 8. Using the approximation described in that section, the equivalent standard deviations for these unmodeled fields are 404 nT for the Z, and 285 nT for the X and Y components for observatory data. However, when modeling vector biases (Langel et al., 1982), these error

contributions may be omitted at that particular observatory, since the biases in fact account for local unmodeled fields.

4. Post 1980 Land and Selected Aeromagnetic and Marine Survey Data

The post 1980 land and selected aeromagnetic and marine survey data described in this section were statistically analyzed, i.e. uncertainty estimates were assigned to either the raw or averaged observations, using two methods (for a more detailed description see Langel et al., 1988b): (1) a combination of measurement-source criteria, which isolates systematic error resulting from common instrument and human error, and spatial distribution criteria, which isolates errors germane to a particular global region, with the greater of the two uncertainty estimates being used for the observation sigma; and (2) an analysis for linearly distributed data in which an average value and associated standard deviation are assigned to each of a series of segments of a line of observations. The average values are the data used for field modeling with the observation sigma taken to be the standard deviation of the data from that line segment. For each segment the data is rejected if taken during a period of magnetic disturbance or if the data is not sufficiently contiguous. {NOTE: In later uses of this data, and in data sets described in the next section, the standard deviation was replaced by the standard error of the mean for that line segment of data.}

This data set is sub-divided into 8 surveys, each of which represents a hopefully homogeneous statistical entity. Specifically, the post 1980 land survey data, analyzed by method 1, is divided into a 1980.0 to 1982.5 sub-set and a 1982.5 to 1987.5 sub-set. The aeromagnetic data is comprised of two collections of Project Magnet data, each of which is sub-divided into two time spans. The first collection is divided into a 1980.0 to 1982.5 sub-set and a 1982.5 to 1987.5 sub-set. In order to obtain a decimated set of averaged data, these sub-sets were first processed using method 2. The uncertainty estimates for these averaged data sets were subsequently assigned using method 1. The second collection is divided into a 1984.0 to 1985.0 sub-set and a 1985.0 to 1986.0 sub-set, which were analyzed by method 2 only. The final group of data consists of total-intensity marine measurements, which were analyzed in a similar fashion to the first collection of Project Magnet data. This group is divided into data residing in the 1980.0 to 1982.5 time interval and the 1982.5 to 1987.5 time interval.

Because the survey data do not generally repeat in spatial position, biases cannot be resolved, as is the case for observatories. Hence, the effects of unmodeled field sources must be incorporated into the survey weighting scheme. The measurement count, the average time of observation, and the average assigned standard deviation, which includes an estimate of contributions for unmodeled field sources (see Section 8), are listed in Table 2 for each component present in each of the surveys.

5. Project Magnet White Sands and Remaining Post 1980 Marine Survey Data

The special Project Magnet White Sands survey and the remaining post 1980 marine survey data were statistically analyzed using method 2 described in the previous section. However, as noted previously, the standard error of the mean from each linear segment was assigned as the observation uncertainty or sigma of the mean rather than the standard deviation of the various measurements about the mean. The White Sands survey was considered homogeneous, while the marine surveys were sub-divided into 7 groups depending on time of observation: from the years 1980, 1981, 1983, 1984, 1985, 1986, and 1987. As with the previous survey data, the effects of unmodeled field sources were incorporated using the correlated weight matrix. The measurement count, the average time of observation, and the average assigned standard deviation are listed in Table 3 for each component present in each of the surveys.

6. DE-2 Satellite Data

The Dynamics Explorer-2, DE-2, satellite was equipped with a three-axis fluxgate magnetometer with which vector measurements were made. However, limits in the accuracy of attitude determination preclude the use of such data for main field modeling, even after an attempt was made at in-flight calibration (Langel et al., 1988a). The associated

computed and corrected scalar data, which is invariant to spacecraft orientation, are of sufficient quality for use in field modeling. Hence, 5100 scalar data points collected between September 30, 1981 and January 6, 1983 were included in this study. These data are described by Langel et al. (1988a). An uncertainty of 26 nT was assigned to all the data, and the correlated weight matrix used. The scalar measurement count, the average time of observation, and the average assigned standard deviation are listed in Table 4.

A listing of names of the files containing the various observation data sets included in this study is given in Table 5. These files currently reside on the GSFC IBM-3081 mainframe under the MVS-TSO operating system.

7. Data Distribution

A series of global distribution plots of the observatory data used in this study are given by year since 1980 in Figures 1-10. These data are concentrated towards the earlier years, having an average time of 1983.2. The coverage is far better for the years 1980 through 1987, although it is typically concentrated in Europe, sparse in the southern hemisphere, and practically non-existant in the oceans.

The Project Magnet survey distributions are given in Figures 11-16 for each of the years 1981 through 1985 and 1989. Many of the flight lines for the 1981-1985 surveys cover ocean areas, complementing the

observatory data and helping to establish global control. Note the concentrated distribution of data over the White Sands region in the 1989 plot.

Figures 17-24 show the global distribution of the various marine surveys analyzed in this study. The plots are by year from 1980 through 1987. Though the uniformity of coverage varies over time, most of the major ocean basins are sampled to some extent. The mid to northern Pacific and the northern Atlantic basins have particularly good coverage while a paucity of data exists in the southern Pacific and the Arctic basins. These surveys, however, provide the most extensive control in the ocean regions.

The post 1980 land survey data distributions are also plotted by year from 1980 to 1987 and are given in Figures 25-32. Like the observatories, the surveys are typically concentrated in Europe and are sparse in the southern hemisphere. They also provide additional coverage in Asia, Africa, and South America, which supplements the observatory data. Note, however, that North America and Australia are essentially void of any land survey coverage in this study.

A distribution plot of DE-2 satellite measurements is not given in this paper, however, one may be found in Langel et al. (1988a). Their plot shows a uniform, global coverage that should provide satisfactory control over regions not covered by any of the aforementioned sources.

8. Methodology

The model was derived using the method described by Cain et al. (1967), Tarantola and Valette (1982), Langel et al. (1982), and Langel (1987). The Bayesian least squares estimation equations are as follows:

$$\delta\hat{p}_{n+1} = (A^T W A + \Omega_a^{-1})^{-1}[A^T W \delta y_n + \Omega_a^{-1}(\hat{p}_a - \hat{p}_n)] \qquad (1)$$

where

- $\delta\hat{p}_{n+1}$ is the vector of parameter adjustments at the (n+1)th iteration,
- $\hat{p}_n$ is the vector of adjusted parameters at the nth iteration,
- δy is the vector of residuals, i.e. measured data minus predicted value from the previous iteration,
- A is the partial derivative matrix of the measurements with respect to the parameters,
- W is the weight matrix for the measurements,
- Ω_a is the a priori parameter covariance matrix,
- $\hat{p}_a$ is the a priori estimate of the parameters,

and the vector of adjusted parameters at the (n+1)th iteration is:

$$\hat{p}_{n+1} = \hat{p}_n + \delta\hat{p}_{n+1} \qquad (2)$$

In the GSFC(5/89-1) model, for parameters other than observatory biases, $\hat{p}_a$ was taken to be the coefficients and Ω_a as the associated covariance matrix of a model produced with 55013 Magsat data points. The starting model, $\hat{p}_o$, was also taken to be this model. For the observatory biases, Ω_a was taken to be zero, while $\hat{p}_o$ comprised the GSFC(11/87) model based on DE-2 satellite data (Table 1). In subsequent models, $\hat{p}_a$ and $\hat{p}_o$ were taken to be the coefficients and Ω_a as the associated covariance matrix of the previous model for all parameters, including observatory biases.

In an effort to account for unmodeled field sources, the observation covariance matrix is assumed to have the following form:

$$W^{-1} = V_d + A^* V_* (A^*)^T + A^{**} V_{**} (A^{**})^T \tag{3}$$

where

W^{-1} is the observation covariance matrix

V_d is the diagonal observation noise covariance matrix

A^* is the partial derivative matrix of the measurements with respect to the parameters corresponding to the internal field model expansion up to degree n^*

A^{**} is the partial derivative matrix of the measurements with respect to the parameters corresponding to the internal field above n^* up to some n^{**}, above which noise dominates

V_* diagonal variability matrix for parameters corresponding to internal field degrees up to n^*

V_{**} diagonal variability matrix for parameters corresponding to internal field degrees above n^* up to n^{**}

Note that the last two terms on the right-hand side of equation (3) are sometimes referred to collectively as the "inverse correlated weight matrix", since inclusion of these terms accounts for the correlation between the data observations. The parameters corresponding to internal field degrees up to n^* include neglected crustal and Sq terms, and for degrees above n^* up to n^{**} the parameters include truncated core and crustal terms. Hence, estimates of both V_* and V_{**} are needed to incorporate this weighting scheme. Consider the function:

$$R_n = (n + 1) \sum_{m=0}^{n} [(g_n^m)^2 + (h_n^m)^2] \tag{4}$$

which was introduced by Mauersberger (1956) and by Lowes (1966, 1974). R_n is the mean square value over the Earth's surface of the magnetic field intensity produced by harmonics of the nth degree. Now R_n is known or can be estimated. Thus, the following may be adopted as an estimate of the diagonal terms of the V matrices:

$$\sigma_n^2 = R_n \ / \ [(2n + 1) \ (n + 1)] \tag{5}$$

Note that there is an estimated R_n spectrum corresponding to each of the field sources, i.e. core, crust, Sq, etc. Analytic expressions have been determined for each of these spectra (Langel et al., 1989):

$$\text{Core:}\quad R_n = (1.349 \times 10^9)\ (0.270)^n$$

$$\text{Crust:}\quad R_n = (20)\ (0.9999387)^n \tag{6}$$

Sq: R_n computed from the model of Malin (1973)

Thus, W^{-1} may now be computed. This formulation still does not account for unmodeled temporal change parameters, which might be important for a ten year period.

Note that W^{-1} is a full matrix with dimensions N by N, where N is the number of data points reduced in the particular model. Hence, for large observation data sets, i.e. Magsat, this computation becomes unmanagable. An approximation is adopted to facilitate the method. The approximation is not as satisfactory as the full calculation, but it does provide more realistic error estimates than when the effects of neglected terms are completely ignored.

The approximation is to neglect the off-diagonal elements of the $A^{**}V_{**}(A^{**})^T$ term in equation (3) giving:

$$W^{-1} = U + A^{*}V_{*}(A^{*})^T \tag{7}$$

where U is a diagonal matrix which includes V_d and the diagonal elements of $A^{**}V_{**}(A^{**})^T$. Langel et al. (1989) have shown that this approximation is quite acceptable for satellite data, however, it tends to be less accurate for closely spaced survey data. The resulting expressions for the modeled core field, $\hat{\alpha}$, and its associated covariance matrix, $V_{\hat{\alpha}}$, are

$$\hat{\alpha} = [(A^*)^T U^{-1} A^*]^{-1} (A^*)^T U^{-1} \delta y_n \tag{8a}$$

$$V_{\hat{\alpha}} = [(A^*)^T U^{-1} A^*]^{-1} + V_* \tag{8b}$$

In previous sections estimates for the data standard deviation, including unmodeled parameters and fields, were given and the reader referred to this section for an explanation of how those estimates were obtained. The estimate was taken by consideration of equation (3). If the second term on the right is neglected and only the diagonal terms from the third term considered we have

$$V_d' = V_d + \mathrm{diag}[A^{**}V_{**}(A^{**})^T]. \tag{9}$$

The quoted data standard deviations were derived from (9) by taking the rms of the terms corresponding to the particular data type and component.

9. The GSFC(5/89-X) Model

The field is assumed to be curl free and representable by a potential function in the form of the usual spherical harmonic series:

$$V = a \sum_{n=1}^{n^*} \sum_{m=0}^{n} (a/r)^{n+1} [g_n^m \cos m\phi + h_n^m \sin m\phi] P_n^m(\cos\theta)$$
$$+ a \sum_{n=1}^{n^{**}} \sum_{m=0}^{n} (r/a)^n [q_n^m \cos m\phi + s_n^m \sin m\phi] P_n^m(\cos\theta) \quad (10)$$

where a is the mean radius of the earth (taken to be 6371.2 km), r, θ, and ϕ are the standard spherical coordinates, and the $P_n^m(\cos\theta)$ are the Schmidt quasi-normalized form of associated Legendre functions of degree n and order m. The magnetic field is then given by

$$\mathbf{B} = -\nabla V \quad (11)$$

Theoretically, (10 and (11) hold only if n^* and n^{**} go to infinity and when the region of validity is source free. The measured internal B contains contributions from both the Earth's core and from its crust; n^* is chosen so that V represents fields from the core but not the crust, to our best estimation. Langel and Estes (1982) concluded that the core field dominates for $n < 13$ and the crustal field for $n > 15$ so, as from Langel et al. (1980) and Langel and Estes (1982), we have chosen $n^* = 13$. Because DE-2 and Magsat pass through regions of field aligned

currents, the source-free assumption does not strictly hold. However, these currents have little effect on the field magnitude (Langel, 1974), so the procedure for Magsat data was to use component data equatorward and scalar data poleward of 50° geomagnetic latitude. Only scalar data were used from DE-2.

The main contribution to the external portion of **B** comes from the equatorial ring current, with contributions also from magnetopause and magnetotail currents. Near the Earth, fields from these sources tend to be aligned mainly along the dipole axis and are well described when n**=1. However, unlike the field from the core, the external fields vary considerably with both universal and local time. The hourly Dst index is commonly taken to be an indicator of the relative change of these fields with universal time, and the local time variations are generally small during magnetically quiet periods. The following relationship was determined between the degree one external terms and Dst from Magsat data:

$$q_1^0 = 18.7 - 0.63 \text{ Dst (nT)} \tag{12a}$$

$$q_1^1 = -1.1 - 0.07 \text{ Dst (nT)} \tag{12b}$$

$$s_1^1 = -3.1 + 0.17 \text{ Dst (nT)} \tag{12c}$$

The g_1^0 internal coefficient is also affected by the presence of time varying external fields and can be expressed as a constant term representing the contribution from the Earth's core plus a Dst related term:

$$g_1^0 = -29986.6 - 0.17 \text{ Dst (nT)} \tag{13}$$

This formulation differs from that used previously by Langel et al. (1988a) in which the external variation in the g_1^0 coefficient is proportional to the q_1^0 coefficient. Transformation between the two formulations is effected by the use of equation (12a) as a function of Dst. These external and Dst multiplier terms listed above are part of the model derived from MAGSAT and used as a priori to the GSFC(5/89-X) series.

The temporal variation in the internal field is modeled using a first degree Taylor Series expansion about the epoch e:

$$g_n^m(t) = g_n^m(e) + \dot{g}_n^m(e)\,(t - e) \tag{14}$$

where t is the evaluation time. The secular variation is considered negligible at and above n = 11 for this analysis.

A listing of the GSFC(5/89-X) series model parameters and, when available, their estimated errors is provided in the appendices. Specifically, the static and secular variation components and errors of

the internal field Gauss coefficients are listed in Appendix A, the static component and error of the external field Gauss coefficients and the Dst multiplier terms and errors are listed in Appendix B, and the observatory vector biases and errors are listed in Appendix C. Note that Appendix C does not include the GSFC(5/89-5) bias listing.

A "global" file is generated for each observation-batch processed by the modeling software. It contains the updated model and associated covariance, parameter space, and batch information. Table 6 lists the names of the global files currently residing on the GSFC IBM-3081 mainframe under the MVS-TSO operating system which were generated for each of the GSFC(5/89-X) series models.

10. Discussion of GSFC(5/89-X)

Each of the GSFC(5/89-X) series model analyses were examined for internal consistancy. Firstly, the data weighting remained fixed through each iteration on a particular batch of data. Hence, solution convergence was realized after only a few iterations. Secondly, the total weighted residual variance was found to decrease with iteration number in all analyses. Hence, the estimator was generally able to extract the signal from the data, allowing it to determine a valid search direction for the model adjustment. Furthermore, the weighted residual variances for each observed magnetic component type decreased with iteration number in all analyses, thus indicating that each component type contained observable signal.

An inter-comparison was also made between successive members of the series to assess the effects of each new batch of data on the parameter space of the model. In order to facilitate a quantitative comparison, coefficient differences between successive models were computed for the internal field at various times. In general, the coefficient behavior is as expected: (1) the static terms vary only slightly with the appending of new data because of the volume of Magsat data already reduced, while the secular variation terms are more significantly influenced by the new data, (2) the percent change in coefficients increases with increasing spherical harmonic degree, since the higher degrees are more sensitive to noise levels in the data, and (3) the variation in static terms generally increases as the difference between the model epoch and the time of comparison increases.

Specifically, the comparison between GSFC(5/89-1) and -2 at year 1980 showed a static coefficient change of < 5% for all terms except the g_{13}^4 term, which changed by 18%. As noted, the change in secular variation coefficients generally increases with increasing spherical harmonic degree. The coefficient differences at year 1980 between GSFC(5/89-2) and -3 again indicate a general static change of < 5% and a secular variation change that roughly increases with increasing degree. Where large percentage changes in coefficients do occur, e.g. 396% for $\dot{g}_8^4$ and 237% for $\dot{h}_{10}^8$, it is for coefficients very small in magnitude. Hence, the effects of the two survey data batches on the model parameter space are about the same. The coefficient comparison between GSFC(5/89-

3) and -4 at year 1980 reveals that most of the static change is < 5%, but, at the higher degrees, there are several coefficients that change by more than that, i.e. 35% for h_{13}^{11}, 45% for h_{13}^{8}, and 28% for g_{12}^{12}. The change in secular variation coefficients is much greater overall than those observed in the previous comparisons, the largest being 7711% for $\dot{h}_{10}^{1}$ and 8119% for $\dot{g}_{9}^{6}$. Again, however, all of the high percentage changes occur for coefficients which are very small, so that the real change is small in spite of the large percentage. Evidently, the DE-2 satellite data exert a much stronger influence on the model parameter space than the survey data.

Plots of the first three spherical harmonic degrees (first 15 coefficients) through time for each of the models in the series were superposed along with the IGRF85 model (Figures 33a-i). The attendant error bars for GSFC 5/89-4 were also included. A similar suite of plots (Figures 34a-i) were made with the GSFC 5/89-4 model subtracted from each model, which allows a more detailed comparison between models. Though the observation information reduced in the IGRF85 model may be a subset of that used in the GSFC(5/89-X) series, the methodology differs, so the inclusion of the IGRF85 coefficient plots provides an independent check of this new series of models.

Examination of the plots indicates that models GSFC(5/89-1), -2, and -3 are quite close. In fact, they are hardly distinguishable in Figures 33a-i and are generally closely grouped in Figures 34a-i. These models will be collectively referred to as "G" models. As previously

noted, the bunching of the G models is a result of their secular variation being largely determined by observatory data. Model GSFC(5/89-5) is often considerably different than the G, the IGRF85, and the GSFC(5/89-4) models. This is to be expected since this model was "forced", by data distribution and weighting, into close agreement with the 1989 White Sands data. On the other hand, GSFC(5/89-4), hereafter called D because of the inclusion of DE-2 data, sometimes shows fairly close agreement with the G models (g_2^1, g_2^2, h_2^2, g_3^2, h_3^2, g_3^3, and h_3^3), sometimes diverges significantly from the G models (g_1^0, g_2^0, g_3^0, g_3^1, and h_3^1), and sometimes is in between (g_1^1, h_1^1, and h_2^1). The secular variation of this model is modified over that of the G models by the presence of data from the DE-2 satellite. Though speculative, we note that the fact that the n=0 terms in model D all diverge significantly from the G models may possibly indicate a systematic bias in the DE-2 data.

As noted earlier, inclusion of the IGRF85 in Figures 33 and 34 gives an independant verification that nothing radical has gone wrong.

Except for the GSFC(5/89-5) model, the series appears to be in reasonable agreement with the IGRF85 model, a least over the first three degrees. Only a slight shift is present in the static terms, and the linear secular variation terms agree in sign and are close in magnitude. It should be noted at this point that the parameter space of the IGRF85 model is different from that of the GSFC 5/89-X series, being a 10th degree spherical harmonic expansion for the internal field with a linear

Taylor series representation for secular variation over the first 8 degrees. Thus, the effects of aliasing alone in the IGRF85 model would be expected to produce some discrepencies.

The plot patterns also confirm the expected behavior of the GSFC(5/89-X) series. For instance, all the plots for a particular coefficient radiate from a point at year 1980 and do not diverge appreciably over the next 9 years, except for the GSFC(5/89-5) model. The error bars for GSFC(5/89-4) also exhibit the same behavior. We note that for most of the coefficients plotted, the GSFC(5/89-1) and -2 and -3 models lie outside the error bars for the -4 model, which reflects all the data. This could indicate that the actual temporal change is not well modeled by a linear time function, could simply indicate that the global coverage of the observatory and survey data is inadequate, or could reflect some as yet undetected bias in the DE-2 data. Conversely, the comparison between GSFC(5/89-1), -2, and -3 coefficient plots reveals very little difference. This indicates that the survey data and observatory data are in very good agreement and that the GSFC(5/89-1) model, which reduced all post 1979.5 observatory data, is dominant in the determination of the secular variation terms.

It is clear that if there is any fundamental difference between models it is between the secular variation of models -3 and -4. Table 7 displays the differences between both the main field and secular variation coefficients of these models. It also shows the appropriate σ for comparison, i.e. $\sigma^2 = (\sigma_3)^2 + (\sigma_4)^2$. For comparison, another column

gives the "degree sigma of the difference", which is defined as the standard deviation of the coefficient differences for a particular spherical harmonic degree. One would expect σ and the degree σ to be of comparable value if the parameterization of the models is accurate and if the models are derived from independant data populations. Examination of the Table shows that the differences between the main field coefficients is negligible, much smaller than the σ. This reflects the fact that the predominant data set determining these coefficients at their epoch, 1980, is from Magsat and is common to both models.

On the other hand, the secular variation differences are, in general, significantly larger than the σ estimated in the fitting procedure. The substantial secular variation coefficient differences must result from the presence of the DE-2 data in one model but not the other. That these differences are larger than statistically expected may be due to one of several reasons. First, the effects of secular variation were not included in the correlated weight matrix calculation. These might be significant and should be investigated. Second, the secular variation parameterization, a linearized Taylor series, might not adequately describe the temporal variation over the ten year period of the data. Third, the DE-2 data might contain a small bias of some sort.

There will always be some question concerning the validity of the DE-2 data. The lack of simultaneous absolute (scalar) data preculudes

detection of instrument drift. We have noted the effects of including DE-2 data in the -4 model. Those effects are important, but they could easily reflect actual field properties as opposed to a systematic bias in the DE-2 data. In short, the evidence for systematic bias in the DE-2 data is weak and inconclusive at best. Accordingly, the GSFC(5/89-4) model is considered the "final" product of this study. Table 8 gives a brief summary of the statistics of the various data types to the GSFC(5/89-4) model and to the suite of GSFC(4/89) models to be discussed in later sections. Unfortunately, the statistics of observatory data with their determined biases is not available as this paper is written. The means and stardard deviations for both observatory and survey data are typical. One feature of the standard deviations is that those for survey data are typically less than those for observatory data. This is attributed to two factors which tend to reduce the contribution of crustal anomalies to the survey data. First, the survey component data is largely made up of data from Project Magnet. In data acquired at aircraft altitudes the anomaly fields are naturally attenuated because of the height of the aircraft above the surface. Second, both the Project Magnet and the Marine Survey (B) data are filtered along track to deliberately minimize the effects of crustal fields.

A series of global maps of the various magnetic field components (Figures 35a-g) and their estimated errors (Figures 36a-g) were computed from GSFC(5/89-4) at 1989 on the earth's surface. Similar maps are

included for the secular variation (Figures 37a-g) and its estimated error (Figures 38a-g). The general morphology of the various features in each of these maps is consistant with maps produced in other studies at different epochs if the effects of westward drift and other temporal processes are taken into account (see Langel, 1987; Langel et al., 1988a). Now the uncertainty maps are germane to the distribution of the data that is being reduced. In the case of the GSFC(5/89-4) model, the North American and European regions exhibit the lowest uncertainty levels while the oceanic areas show the highest levels, thus reflecting the paucity of data over the oceans with respect to the continents. Uncertainty maps were also produced for the special GSFC(5/89-5) model, but they are not included in this report. As expected, they show a bulls-eye feature of low uncertainty over the White Sands Missile Range.

Power spectra of the form of equation (4) were determined for the various models of this series. These spectra map the signal strength distribution over the harmonic degree range and, hence, can indicate the presence of signal adulteration by noise. The R_n spectra of GSFC(5/89-1), -2, -3, and -4 were found to be nearly identical. Thus, from a relative standpoint, the signal from each of the observation batches was resolved at a similar level. A plot of the GSFC(5/89-4) and -5 spectra (Figure 39) shows that the latter contains more power at degree 13. This "flattening" of the power slope is likely a manifestation of the inclusion of high frequency white noise introduced by signal biasing in the spatial domain. It is also of interest to see if these spectra

conform to a "standard" spectrum, which would indicate the validity of the estimation technique and the quality of the observation data. Figure 40 is an overlay of the GSFC(5/89-4) R_n spectrum on that of the MGST(10/81) model. This latter model is a degree 23 spherical harmonic expansion of the internal field with secular variation terms absent, based solely upon Magsat data (Langel and Estes, 1982). This is considered the "standard" model for comparison in the study. The spectra appear to be in good agreement with only a slight deviation at degree 12. Evidently, both the modeling techniques and observation data employed in the GSFC(5/89-1) through -4 models are acceptable by this criteria.

In conclusion, the GSFC(5/89-X) series appears to be valid suite of models, useful for geomagnetic research. It not only utilizes the most complete observation data set available to GSFC, but also incorporates the most comprehensive error analysis used to date at GSFC. Except for the special GSFC(5/89-5) model, the series seem to agree reasonably with the IGRF85 model. The results of the analyses were within the bounds of the expected, with no egregious behavior detected. At the same time, the differences between the secular variation coefficients with and without the DE-2 data indicate that possibly the parameterization is somewhat inadequate or that the DE-2 data has some sort of systematic error. The GSFC(5/89-4) model is the representative of the series, since it reflects all the data reduced. This model was subsequently sent to White Sands for SDI research where it produced satisfactory results (Chamberlain, personal communication.)

11. The GSFC(4/89-X) Series

The GSFC(4/89-X) series consists of four field models. Each model was derived using observatory and survey data after 1983.5. These models differ to the extent that the correlated weight matrix and the solution for observatory vector biases were either applied or not applied. The observatory and survey data used in this series are a sub-set of that used in the GSFC(5/89-X) series. Specifically, the post 1980 land survey from 1982.5 to 1987.5, Project Magnet collection 2 from 1984 to 1985 and from 1985 to 1986, total-intensity marine from 1982.5 to 1987.5, marine surveys from 1983 to 1988, and the Project Magnet White Sands survey were all included in this series. The measurement count, the average time of observation, and the average assigned standard deviation, which includes contributions from unmodeled field sources, are listed in Table 9 for each component present in the composite survey data set. The observatory data used are the 1983.5 to present sub-set of those listed in Table 1. The assigned observation uncertainty estimates and GSFC(11/87) biases listed in this table are also applicable to this series.

For this series of models the parameter space is comprised of a 10th degree and order spherical harmonic expansion (120 terms) for the internal magnetic field and a first degree Taylor series temporal expansion over the first 8 degrees (80 terms) for a total of 200 model

parameters. Certain models also adjust the three vector biases for each observatory having at least three observations of each vector component. The epoch of the models is 1989.411 and the starting models, for parameters other than observatory biases, are the IGRF85 model propagated to this epoch. No a priori information was included in any of the models.

Differences between models in this series lie in the way observatory biases are incorporated, as summarized in Table 10. The GSFC(4/89-1) model applied, but did not adjust, the GSFC(11/87) observatory biases. If a particular observatory had no bias values from GSFC(11/87), the bias was set to zero; no correlated weight matrix was applied to those stations. In the GSFC(4/89-2) model, the observatory biases were adjusted, using the GSFC(11/87) model as a starting point, provided at least three observations of each vector component were present for the observatory, otherwise, the correlated weight matrix was applied to that station. In the GSFC(4/89-3) model, the GSFC(4/89-2) observatory biases were **a priori** and held fixed. If these biases were not available, the GSFC(11/87) biases were used; and if neither set were avaialble, the correlated weight matrix was applied to that station. The GSFC(4/89-1), -2, and -3 models were each iterated three times. In the GSFC(4/89-4) model, which required five iterations, observatory biases were not applied, so the correlated weight matrix was universally applied.

A listing of the GSFC(4/89-X) series model parameters and, when available, their estimated errors is provided in Appendix A for parameters other than observatory biases; Appendix C contains the observatory biases.

Table 10 lists the names of the global files currently residing on the GSFC IBM-3081 mainframe under the MVS-TSO operating system which were generated for each of the GSFC(4/89-X) series models.

12. Discussion of GSFC(4/89-X)

Coefficient differences between the GSFC(4/89-X) models are discussed in order to understand the effects of the differing solutions for observatory biases and the extent to which observatory biases and the correlated weight matrix influence the determined models.

Referring to the Table of coefficients in Appendix A, the σ's assigned by the fitting procedure to models -1 and -3 [Note: the σ's for model -3, not given in the table, are almost identical to those for model -1.] are considerably smaller than those assigned to the other models. These are the models for which observatory biases were furnished as **a priori** information to the model. Model -4 shows the largest coefficient σ's from the fitting process. This reflects the fact that no biases were given or solved for and the correlated weight matrix was given full play. Model -3 applied observatory biases, when available, hence the model had more parameters than model -4, which

resulted in lower estimated coefficient σ's. On the other hand, no satellite data were available for this model so that the bias solution is much less certain than when such data is present. Further, without **a priori** biases the fitting process had less information than models -1 or -3, hence the estimated coefficient σ's are higher than for those models.

The meaningfulness of the estimated coefficients and their σ's depends upon the accuracy of the model parameterization. In the cases of models -1 and -3, the **a priori** observatory bias information was furnished as given, i.e. with no accompanying statistical estimate of the accuracy of the biases. This is tantamount to assuming they are perfectly known, i.e. with $\sigma = 0$. Since these biases are in fact only known approximately, this is not an adequate parameterization and the resulting estimated coefficient σ's are probably too low.

Differences between various models are tabulated in Table 12. The first three columns are the differences of models -2, -3 and -4 from model -1; the second three columns are the differences of models -1, -3 and -4 from model -2. Table 13 summarizes the sigmas of these differences by degree. It is immediately clear that models -2 and -3 are very similar. This is to be expected. The idea behind model -3 is as follows. Model -2 solved for observatory biases. Lowes (1985) has shown that when this is done the observatory data contribute mainly to the secular variation solution. Their effect on the main field coefficients is diminished over fitting procedures where biases are not

solved for. Model -3 is like a further iteration of model -2, except that the observatory biases are held fixed so that the observ-atory data can be fully used in determining the main field coefficients. As noted above, the biases should be included with proper statistical information. As a guess, the actual coefficient σ's for model -3 are probably very close to those of model -2.

Models -4 and -2 are the "most" different in main field coefficients, particularly for degrees 2, 3, 4, and 6, yet comparison indicates these differences to be consistent with the estimated coefficient σ's.

Both the -1 and the -3 models were furnished **a priori** observatory biases, yet the models are significantly different. The biases furnished the -1 model were from the GSFC(11/87) model (Langel et al., 1988a) which included Magsat and DE-2 satellite data. Those furnished the -3 model were mainly derived in the -2 model, with the remainder coming as a supplement from the GSFC(11/87) model, see Appendix C. Also of relevance are the biases computed in the GSFC(5/89-4) model, which also included Magsat and DE-2 satellite data. Comparison indicates that the biases from GSFC(11/87) and GSFC(5/89-4) are similar to one another wheras those from the -2 model deviate considerably. Also, the estimated coefficient σ values from the fitting procedure of the -2 model are in general quite high. We conclude that the bias determination in the -2 model is problematic, with a statistically poorly determined result. This is due to the absence of satellite data

to furnish a reliable baseline, relatively free from crustal magnetic field contamination, against which the biases can be determined. The survey data, while important, contains a large crustal field contribution and is still too sparse to give a good baseline for bias determination at the observatories.

Table 14 shows the differences between the secular variation terms of the GSFC(4/89-x) models. In particular it shows the differences between the -2, -3, and -4 models and the -1 model. Comparison with the coefficient Table in Appendix A indicates that the differences are consistent with the estimated σ values from the fitting procedure. Models -2 and -3 differ somewhat, but not radically, from model -1. Model -4 shows considerably more difference. This is attributed to the fact that model -4 did not utilize observatory biases at all. It is also apparent in the much higher coefficient σ's assigned to model -4 in the fitting process. Model -3 is in somewhat better agreement with model -1 than is model -2. This is probably because model -1 and model -3 were furnished biases **a priori**, while biases were solved for in model -2. The use of biases in all three of models -1, -2, and -3 removes the problem of contamination by crustal fields in the observatory data. This should permit a more accurate secular variation result.

Table 8 gives the summary statistics of the data to each of the four models. Observatory biases are not taken into account in the observatory statistics. Tables 15 and 16 give year by year statistics which are also plotted in Figures 41 a - 41 n. These are all within the

range of "typical" values one might expect for any model. The differences reflect the way the bias solutions effect the data weighting. For example, model -4 with no bias solution tries to fit the observatory data strictly with the spherical harmonic series. As a result the magnitude of the mean observatory residuals tend to be higher and the scatter (σ) of the observatory data lower than the other models which included some sort of bias, either **a priori** or solution. This attempt to fit the crustal signal in the observatory data results in an increased misfit (σ) for the survey data. Models -2 and -3 generally show very similar statistics, as might be expected from the previous discussion. The mean deviation of these models is moderate and their standard deviations are the lowest for this suite. This is attributed to the fact that these models solved for or utilized biases to the observatory data determined from this same data.

Some instructive "peculiarities" occur for the -01 model as a consequence of setting some **a priori** biases equal to zero with no error, i.e. **a priori** $\sigma = 0$. This is best illustrated by noting the mean and sigma for the Z component of survey data for 1985.5. From Figures 41j and 41n both quantities are much larger than for the other models. The survey data involved is from a single Project Magnet survey over the region from the southern tip of South America to the corresponding peninsula of Antarctica (See Figure 42). Forty four points were extracted and included in the fit from this survey. The observatory Arctowski is located in this region of Antarctica. It turns out that

the **a priori** bias value for Arctowski in the -01 model was taken to be zero. However the Z bias at Arctowski from the -02 model was 609 nT! The model weighting was thus such that the fitting process tried to fit a 609 nT anomaly as though it were from the core, with high weight. The Project Magnet data, from the same region, were not weighted as heavily. Figure 42 shows the resulting residuals in the Z component of the Project Magnet data, from which much of the crustal field has been filtered. The result is a highly negative mean value for the Magnet data since the field is trying to fit the positive anomaly at Arctowski! Also, the scatter of the Project Magnet data was increased, as given in Table 16 and Figures 41j and 41n.

The "lessons" to be learned are several. One should not assign a zero bias with high weight when the actual bias is unknown. Further, when **a priori** biases are given, it is important that they carry proper weights and it is probably best to adjust them in the fitting process even though minimal new information is available.

In Figures 43a-i, the first 15 coefficients from each of the GSFC(4/89-X) series models are plotted from 1980 to 1989 along with those from the IGRF85. Included with these figures are the error bounds associated with the GSFC(4/89-4) model. The plots reemphasize the discussion of the last few paragraphs, i.e.: All of the models are "reasonable" in that they are not wildly different. There is some tendency to converge near 1985, which is near the midpoint of the data. In general the -4 model is the maverick of the lot, i.e. its temporal

change often shows a different trend than the other models. Recall that this is the only model not making use of observatory biases. Models -2 and -3 show very similar behavior, as already noted, and model -1 is probably most like the IGRF of the models plotted here.

Differences between various main field coefficients and those of GSFC(5/89-4), all projected to 1985, are shown in Table 17 and the σ of these differences by degree is shown in Table 18. These Tables include the GSFC(5/89-3) and -4 models as well as the GSFC(4/89-x) models. Because of the more extensive data set, including satellite data, which also permitted meaningful solution for observatory biases, the (5/89) models are considered the more accurate, i.e. the standard. From the Tables, as might be expected, the two (5/89) models are in closest agreement. Of the (4/89) models, the -1 model is in closest agreement with the (5/89) models. This reflects the fact that the biases furnished the -1 model were in fairly close agreement with those used in the (5/89) models. These biases were determined from a different data set, i.e. from an earlier time period, than that used in the -1 model, thus they are based on independant information. However, as pointed out above, they should have been accompanied by an error estimate. It is concluded that the -1 model coefficients are likely the most accurate of the (4/89) series, but that their stated coefficient σ's are underestimated because of the lack of error estimation on the bias values.

Of the other (4/89) main field models, the -4 model is in considerably better agreement with the (5/89) models than are either the -2 or -3 model. This, perhaps, makes sense, as this model is most nearly correctly parameterized; it does not try to solve for observatory biases without satellite data to furnish a baseline; and it incorporates the correlated weight matrix. The -2 model attempts solution for observatory biases, probably without an adequate data base to do so, and the -3 model incorporates those biases without proper error estimates.

Differences between secular variation coefficients from the (5/89-3) and -4 and the (4/89-x) models are shown in Table 19 and their σ's by degree are given in Table 20. Again as expected, the (5/89) models are in closest agreement. Next is the (4/89-2) model in which biases were solved for and the observatory data allowed to determine the secular variation without undue contamination from crustal fields.

Figures 44a-i are similar to Figures 43a-i, except the coefficients from the GSFC(5/89-4) model are plotted rather than those of the IGRF85. The GSFC(4/89-1) model shows close agreement to the GSFC(5/89-4) for the g_1^1, h_1^1, g_2^2, h_2^2, g_3^1, g_3^3, and h_3^3 terms. The GSFC(4/89-2) compares well with the GSFC(5/89-4) for the g_2^0, g_2^1, g_3^0, and h_3^1 terms, while the GSFC(4/89-3) agrees only with the g_3^2 and h_3^2 terms, and the GSFC(4/89-4) agrees only with the g_1^0 and h_2^1 terms. As with the IGRF85 model, the GSFC(4/89-4) exhibits severe deviation from several of the GSFC(5/89-4) coefficient trends.

An assessment of the GSFC(4/89-X) series was also made based upon their R_n spectra. Since the same observation data was reduced in each of the constituent models, any variation in the power spectra must reflect differences in modeling techniques. Figure 45 is an overlay of the R_n spectra for GSFC(4/89-1), -2, and -4, and GSFC(5/89-4). The GSFC(4/89-3) spectrum was omitted since it is almost indistinguishable from that of GSFC(4/89-2). The spectra show a consistent increase in degree 7 through 10 harmonic power from GSFC(4/89-1) to -2 to -4, except at degree 10 where the GSFC(4/89-4) power curve exhibits a peculiar steepening, making it coincident with the GSFC(4/89-1) curve. Recall that the GSFC(4/89-1), -2, and -3 models all incorporate the effects of unmodeled field sources through various applications of the observatory biases, and that the GSFC(4/89-4) accounts for them via the correlated weight matrix only. We conclude that the use of observatory biases generally reduces the level of high frequency noise introduced in the system over that introduced by the use of the correlated weight matrix alone. Variation in the GSFC(4/89-1), -2, and -3 spectra may simply be a function of the biases used. In this case, the GSFC(11/87) biases allow for better signal resolution before they are adjusted. The GSFC(5/89-4) spectrum, considered here the standard, clearly contains less power than the GSFC(4/89-X) series spectra above degree 7. This is

probably due to two reasons: first, the signal from the observatory and survey data is probably not sufficient to allow both static and secular variation terms to be resolved, whereas the Magsat data signal is sufficient; and secondly, since the truncation level of the GSFC(4/89-X) series is lower than that of GSFC(5/89-4), some aliasing of the unmodeled degree 11 through 13 signal may be present, although use of the correlated weight matrix should minimize this problem.

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Table 1. Observatory Biases from the GSFC (11/87) Model

Observatory	Time Span		Biases (nT)			Standard Deviation (nT)		
	Start	Stop	X	Y	Z	X	Y	Z
Abisko VI	1979.50	1983.50	7.5	68.1	19.0	25.0	25.0	25.0
Addis Ababa II	1979.50	1985.50	574.8	6.5	120.9	25.0	25.0	25.0
Alert	1979.50	1986.50	-19.7	28.4	-208.7	25.0	25.0	25.0
Alibag III	1979.50	1987.50	-215.1	449.9	602.3	25.0	25.0	25.0
Alma Ata	1979.50	1987.50	149.1	31.2	-185.4	25.0	25.0	25.0
Almeria	1979.50	1986.50	-26.9	30.7	24.4	25.0	25.0	25.0
Amatsia	1979.50	1986.50	115.3	31.9	276.0	25.0	25.0	25.0
Annamalainag II	1979.50	1984.50	153.8	-91.9	-62.6	25.0	25.0	25.0
Apia IV	1979.50	1987.50	-30.6	216.9	-898.0	25.0	25.0	25.0
Aquila	1979.50	1987.50	-10.9	32.6	5.3	25.0	25.0	25.0
Arctowski	1979.50	1985.50	0.0	0.0	0.0	25.0	25.0	25.0
Argentine Islnd	1979.50	1986.50	77.0	-85.3	475.9	25.0	25.0	25.0
Arti	1979.50	1987.50	112.2	-261.3	438.8	25.0	25.0	25.0
Baker Lake VII	1979.50	1987.50	170.5	-32.3	-95.8	25.0	25.0	25.0
Bangui IV	1979.50	1987.50	-130.7	-65.8	257.5	25.0	75.0	25.0
Barrow IV	1979.50	1987.50	15.7	-61.8	-48.5	30.0	25.0	25.0
Bay Saint Louis	1986.59	1986.59	0.0	0.0	0.0	25.0	25.0	25.0
Beijing	1979.50	1986.50	617.3	-216.3	448.3	25.0	25.0	25.0
Belsk	1979.50	1987.50	105.0	132.4	298.2	25.0	25.0	25.0
Bereznayki II	1979.50	1980.50	-422.4	-311.5	227.5	75.0	75.0	75.0
Bereznayki III	1981.50	1987.50	-422.4	-311.5	227.5	75.0	75.0	75.0
Bjornoya II	1979.50	1987.50	-110.2	48.7	2.6	25.0	25.0	25.0
Borok	1979.50	1987.50	-28.4	-69.4	-447.7	25.0	25.0	25.0
Boulder	1979.50	1987.49	-7.9	74.5	-156.0	25.0	25.0	25.0
Brorfelde	1980.50	1982.50	0.0	0.0	0.0	25.0	25.0	25.0
Brorfelde II	1983.50	1986.50	0.0	0.0	0.0	25.0	25.0	25.0
Budkov	1979.50	1986.50	-34.5	-35.3	-48.0	25.0	25.0	25.0
Cambridge Bay	1979.50	1987.50	115.9	-84.4	110.7	25.0	25.0	45.0
Canarias	1979.50	1986.50	-423.7	95.4	-1038.7	25.0	25.0	25.0
Canberra	1979.50	1987.50	14.7	32.1	98.0	25.0	25.0	25.0
Cape Wellen III	1979.50	1987.50	-71.1	61.7	-104.1	25.0	25.0	25.0
Casey	1979.50	1985.50	865.4	-340.7	-892.8	150.0	150.0	150.0
Cha Pa	1979.50	1979.50	-388.1	-127.2	-293.3	25.0	25.0	25.0
Cha Pa II	1980.50	1983.50	-388.1	-127.2	-293.3	25.0	25.0	25.0
Chambon ForetII	1979.50	1987.50	-74.7	-22.7	103.5	25.0	25.0	25.0
Changchun	1980.50	1985.50	-118.9	26.9	192.5	25.0	25.0	25.0
Charters Towers	1984.50	1985.50	0.0	0.0	0.0	25.0	25.0	25.0
Chelyuskin IV	1979.50	1987.50	-13.8	-102.5	-94.6	30.0	30.0	30.0
Chichijima	1979.50	1983.50	-310.8	-33.0	254.0	25.0	25.0	25.0
Chichijima II	1984.50	1985.50	-310.8	-33.0	254.0	25.0	25.0	25.0
Coimbra	1979.50	1987.50	23.3	-7.4	8.3	25.0	25.0	25.0
College III	1979.50	1987.50	-13.0	-47.7	-102.1	25.0	25.0	25.0
Costa Rica	1979.87	1979.87	0.0	0.0	0.0	25.0	25.0	25.0
Davis	1981.50	1987.50	-253.5	124.9	92.7	25.0	25.0	25.0
Del Rio	1982.81	1988.50	0.0	0.0	0.0	25.0	25.0	25.0
Dikson V	1979.50	1987.50	-85.9	-149.3	-262.8	25.0	25.0	25.0
Dombas III	1979.50	1986.50	-85.0	-89.1	-246.5	25.0	25.0	25.0
Dourbes	1979.50	1986.50	6.4	-21.6	77.9	25.0	25.0	25.0
Dumont Durville	1979.50	1987.50	-144.5	-402.6	-2859.4	25.0	25.0	25.0
Dusheti II	1979.50	1985.50	-211.9	7.7	-95.7	25.0	25.0	25.0

Table 1. (continued)

Dymer	1979.50	1985.50	-24.2	82.2	108.2	25.0	25.0	25.0
Ebro IV	1979.50	1983.50	0.0	0.0	0.0	25.0	25.0	25.0
Eskdalemuir	1979.50	1986.50	5.7	-50.3	-49.7	25.0	25.0	25.0
Eyrewell	1979.50	1987.50	-8.3	-37.6	52.6	25.0	25.0	25.0
Fort Churchi II	1979.50	1987.50	-117.6	41.6	-270.3	25.0	25.0	25.0
Fredericksburg	1979.50	1987.50	75.2	-58.4	126.7	25.0	25.0	25.0
Fuquene	1979.50	1982.50	131.6	-59.1	59.8	25.0	25.0	25.0
Furstnfeldbruck	1979.50	1988.25	-28.0	-10.3	9.8	25.0	25.0	25.0
Glenlea	1982.50	1986.50	0.0	0.0	0.0	25.0	25.0	25.0
Gnangara	1979.50	1987.50	4.1	-144.1	139.0	25.0	25.0	25.0
Godhavn II	1979.50	1984.50	284.7	-311.8	714.3	25.0	25.0	25.0
Gornotayezhn II	1979.50	1986.50	-6.4	-14.6	-59.0	25.0	25.0	25.0
Grahamstown	1979.50	1980.08	-114.8	-2.6	53.4	25.0	25.0	25.0
Great Whale R	1979.50	1984.50	251.3	100.2	-85.1	25.0	25.0	25.0
Great Whale RII	1985.50	1987.50	251.3	100.2	-85.1	25.0	25.0	25.0
Grocka	1979.50	1987.50	-41.0	-52.1	-57.9	25.0	25.0	25.0
Guam	1979.50	1987.50	165.8	86.2	58.7	25.0	25.0	25.0
Guangzhou II	1980.50	1986.50	71.4	69.2	14.8	25.0	25.0	25.0
Halley Bay II	1980.50	1980.50	0.0	0.0	0.0	25.0	25.0	25.0
Hartebeesthoek	1979.50	1985.50	94.4	5.4	56.6	25.0	25.0	25.0
Hartland	1979.50	1986.50	-40.4	5.9	61.1	25.0	25.0	25.0
Hatizyo	1979.92	1980.50	-15.9	-783.9	437.9	25.0	25.0	25.0
Hatizyo II	1981.50	1987.50	-15.9	-783.9	437.9	25.0	25.0	25.0
Havana	1979.50	1979.50	0.0	0.0	0.0	25.0	25.0	25.0
Heiss Island II	1979.50	1987.50	97.8	-681.0	1117.1	25.0	25.0	25.0
Hel III	1979.50	1987.50	43.5	-168.6	-97.7	25.0	25.0	25.0
Hermanus	1979.50	1987.50	9.3	-3.7	46.0	25.0	25.0	25.0
Honolulu IV	1979.50	1987.50	-153.7	81.9	-332.3	25.0	25.0	25.0
Hornsund	1979.50	1983.50	-17.7	-25.3	-46.8	25.0	25.0	25.0
Huancayo	1979.50	1986.50	80.8	23.8	5.7	25.0	25.0	25.0
Hurbanovo	1979.50	1986.50	3.2	-24.6	-56.7	25.0	25.0	25.0
Hyderabad	1979.50	1986.50	312.9	18.9	484.7	25.0	25.0	25.0
Irkutsk II	1984.50	1985.50	0.0	0.0	0.0	25.0	25.0	25.0
Istanbl Kndilli	1979.50	1981.50	0.0	0.0	0.0	25.0	25.0	25.0
Jaipur	1979.50	1986.50	177.8	-397.5	-26.0	25.0	25.0	25.0
Kakioka II	1979.50	1989.12	-7.7	14.9	-84.0	25.0	25.0	25.0
Kanoya	1979.50	1989.12	-10.8	51.7	-34.0	25.0	25.0	25.0
Kanozan	1979.50	1986.50	-52.7	37.5	-60.4	25.0	25.0	25.0
Kiev	1987.50	1987.50	0.0	0.0	0.0	25.0	25.0	25.0
Kiruna II	1979.50	1981.50	-824.5	-1829.0	-47.8	25.0	25.0	25.0
Klyuchi II	1979.50	1985.50	192.1	-91.2	-18.3	25.0	25.0	25.0
Kodaikanal II	1979.50	1986.50	-549.5	276.1	-62.0	25.0	25.0	25.0
Krasnaya Pakhra	1979.50	1987.50	140.9	-23.0	185.1	25.0	25.0	25.0
La Quiaca IV	1979.50	1983.50	0.0	0.0	0.0	25.0	25.0	25.0
Lanzhou II	1980.50	1987.50	-18.7	10.1	-71.1	25.0	25.0	25.0
Lauder	1979.50	1979.50	0.0	0.0	0.0	25.0	25.0	25.0
Leirvogur	1979.50	1987.50	-277.4	607.1	-505.6	25.0	25.0	25.0
Lerwick II	1979.50	1986.50	-132.2	169.8	37.9	25.0	25.0	25.0
Lhasa	1983.50	1983.50	0.0	0.0	0.0	25.0	25.0	25.0
Loparskoye	1979.50	1981.50	106.0	334.8	-558.2	25.0	25.0	25.0
Lovo	1979.50	1983.50	44.0	-10.7	-3.7	25.0	25.0	25.0
Luanda Belas I	1981.50	1985.50	298.7	-77.4	218.7	25.0	25.0	25.0
Lunping	1979.50	1985.50	15.5	47.4	51.7	25.0	25.0	25.0
Lvov	1979.50	1987.50	143.6	120.5	145.2	25.0	25.0	25.0
M Bour	1979.50	1987.50	136.1	63.6	66.9	25.0	25.0	25.0

Table 1. (continued)

Macquarie Islnd	1979.50	1987.50	283.3	-8.4	299.8	25.0	25.0	25.0
Manhay II	1983.50	1985.50	0.0	0.0	0.0	25.0	25.0	25.0
Maputo II	1979.50	1985.50	397.0	70.7	-126.8	25.0	25.0	25.0
Martin Vivies	1981.62	1987.50	-567.6	-709.4	-2024.1	25.0	25.0	25.0
Mawson	1979.50	1987.50	16.3	14.2	185.8	25.0	25.0	25.0
Meanook III	1979.50	1987.50	107.7	24.4	-143.8	25.0	25.0	25.0
Memambetsu	1979.50	1989.12	-240.0	141.6	66.2	25.0	25.0	25.0
Mirnyy III	1979.50	1987.50	-100.4	40.5	-451.4	25.0	25.0	25.0
Misallat III	1979.50	1980.50	0.0	0.0	0.0	25.0	25.0	25.0
Mizusawa	1979.50	1986.50	-146.6	45.0	-163.5	25.0	25.0	25.0
Molodezhnaya	1979.50	1985.50	-20.5	-104.7	-254.9	25.0	25.0	25.0
Mould Bay	1979.50	1987.50	-19.0	14.4	-62.0	25.0	25.0	25.0
Muntinlupa	1979.50	1986.50	-55.7	-14.2	58.3	25.0	25.0	25.0
Nagycenk	1979.50	1980.50	-2.5	-10.0	-73.1	25.0	25.0	25.0
Nagycenk II	1981.50	1983.50	-2.5	-10.0	-73.1	25.0	25.0	25.0
Nairobi	1979.50	1980.50	0.0	0.0	0.0	25.0	25.0	25.0
Nampula	1982.75	1984.50	0.0	0.0	0.0	25.0	25.0	25.0
Narssarssuaq	1980.00	1984.00	-330.7	279.8	570.4	25.0	25.0	25.0
Newport	1979.50	1986.50	-34.9	122.1	-131.3	25.0	25.0	25.0
Niemegk	1979.50	1987.50	-32.0	-5.4	-85.4	25.0	25.0	25.0
Novo Kazalinsk	1979.50	1987.50	-113.5	-165.7	-6.3	25.0	25.0	25.0
Novolazarevs II	1979.50	1982.50	-273.9	71.0	90.3	30.0	30.0	25.0
Nurmijarvi	1979.50	1987.50	288.8	-115.8	87.2	30.0	30.0	25.0
Ottawa	1979.50	1987.50	139.4	-138.7	171.9	25.0	25.0	25.0
Pamatai II	1979.50	1987.50	-653.6	-726.0	-133.7	25.0	25.0	25.0
Panagyurishte	1979.50	1983.50	-191.0	-175.5	-189.8	25.0	25.0	25.0
Paratunka	1979.50	1987.50	-346.9	217.7	238.4	25.0	25.0	25.0
Patrony	1979.50	1987.50	13.5	37.4	-80.9	25.0	25.0	25.0
Pilar	1979.50	1983.50	5.7	-16.6	-17.9	25.0	25.0	25.0
Pleshenitzi	1979.50	1987.50	277.9	168.0	-143.0	25.0	25.0	25.0
Podkam Tunguska	1979.50	1987.50	44.6	-13.7	-290.6	25.0	25.0	25.0
Port Moresby	1979.50	1987.50	26.2	63.2	261.0	25.0	25.0	25.0
Port-Alfred	1979.50	1980.50	0.0	0.0	0.0	25.0	25.0	25.0
Port-Alfred I	1981.50	1987.50	-818.0	1115.4	171.0	25.0	25.0	25.0
Port-Aux-Franca	1979.50	1987.50	228.9	169.9	655.1	25.0	25.0	25.0
Quetta II	1979.50	1983.50	3.7	84.5	-54.6	25.0	25.0	25.0
Resolute Bay	1979.50	1987.50	47.0	44.9	58.0	25.0	25.0	25.0
Rude Skov	1979.50	1984.50	37.6	-15.3	-55.6	25.0	25.0	25.0
Sabhewala II	1979.50	1986.50	-22.2	-59.4	29.3	25.0	25.0	25.0
San Juan II	1979.50	1987.50	-36.8	180.4	188.9	25.0	25.0	25.0
San Pablo	1981.50	1986.50	10.7	32.7	-58.9	25.0	25.0	25.0
Sanae II	1979.75	1987.50	-53.5	-40.1	48.1	25.0	25.0	25.0
Scott Base II	1979.50	1979.50	0.0	0.0	0.0	25.0	25.0	25.0
Sheshan	1979.50	1985.50	-242.3	82.9	235.8	25.0	25.0	25.0
Shillong	1979.50	1986.50	-107.0	-79.0	-355.3	25.0	25.0	25.0
Sitka III	1980.50	1987.25	6.5	-13.5	-67.3	25.0	25.0	25.0
Sodankyla	1979.50	1987.50	-163.9	-111.9	-600.1	25.0	25.0	25.0
South Georgia	1979.50	1981.50	-76.7	-355.5	96.4	25.0	25.0	25.0
St John S	1979.50	1987.50	35.3	16.6	4.5	25.0	25.0	25.0
Stekoliniy	1979.50	1987.50	-286.0	-741.5	43.3	25.0	25.0	25.0
Stepanovka III	1979.50	1987.50	-114.3	-700.3	73.0	25.0	25.0	25.0
Surlari II	1979.50	1987.50	2.9	-34.4	-57.9	25.0	25.0	25.0
Syowa base II	1979.50	1986.50	-34.7	-37.9	21.1	25.0	25.0	25.0
Tamanrasset III	1979.50	1979.50	65.6	-267.2	20.4	25.0	25.0	25.0
Tamanrasset IV	1980.50	1984.50	65.6	-267.2	20.4	25.0	25.0	25.0

Table 1. (continued)

Tananarive III	1983.50	1983.50	0.0	0.0	0.0	25.0	25.0	25.0
Tangerang III	1979.50	1983.50	29.2	-35.4	89.8	25.0	25.0	25.0
Tatuoca III	1979.50	1985.50	0.0	0.0	0.0	25.0	25.0	25.0
Tbilisi	1987.50	1987.50	0.0	0.0	0.0	25.0	25.0	25.0
Thule	1980.50	1984.50	-265.9	203.4	-25.2	25.0	25.0	25.0
Thule III	1980.50	1984.50	-66.1	107.7	29.3	25.0	25.0	25.0
Tihany II	1979.50	1987.50	-28.1	9.0	-33.6	25.0	25.0	30.0
Tiksi VI	1979.50	1987.50	-67.3	-139.0	-125.0	25.0	25.0	25.0
Toledo III	1979.50	1981.50	15.0	6.4	-5.6	25.0	25.0	25.0
Trivandrum	1979.50	1987.50	271.0	192.3	216.6	25.0	25.0	25.0
Tromso	1979.50	1987.50	111.4	-415.7	104.4	25.0	25.0	25.0
Tsumeb	1979.50	1987.50	64.6	-104.5	96.5	25.0	25.0	25.0
Tucson	1979.50	1989.08	-51.4	-50.5	116.2	25.0	25.0	25.0
Tulsa II	1982.41	1987.50	-37.3	-33.5	117.1	75.0	75.0	75.0
Tuntungan	1982.50	1982.50	0.0	0.0	0.0	75.0	75.0	75.0
Ujjain	1979.50	1981.50	-226.9	187.2	280.0	25.0	25.0	25.0
Ujjain II	1984.50	1985.50	-226.9	187.2	280.0	25.0	25.0	25.0
Urumqi	1980.50	1984.50	-53.2	-10.2	46.1	25.0	25.0	25.0
Valentia	1979.50	1988.50	127.2	-51.8	27.1	25.0	25.0	25.0
Vannovskaya II	1979.50	1987.50	178.7	85.2	80.6	25.0	25.0	25.0
Vassouras	1979.50	1985.50	87.0	-82.4	-67.1	25.0	25.0	25.0
Victoria	1979.50	1987.50	31.6	3.6	-329.4	25.0	25.0	25.0
Vostok	1979.50	1987.50	38.0	63.7	17.3	25.0	25.0	25.0
Voyeykovo	1979.50	1985.50	84.7	13.7	-282.9	25.0	25.0	25.0
Vysokay Dub IV	1979.50	1980.50	0.0	0.0	0.0	25.0	25.0	25.0
Whiteshell	1979.50	1980.40	0.0	0.0	0.0	25.0	25.0	25.0
Wien Kobenzl	1979.50	1987.50	18.7	-5.9	11.4	25.0	25.0	25.0
Wingst	1979.50	1987.50	54.0	38.6	-70.1	25.0	25.0	25.0
Witteveen	1979.50	1987.50	24.6	-3.9	-77.6	25.0	25.0	25.0
Wuhan	1980.50	1986.50	51.1	41.4	-55.5	25.0	25.0	25.0
Yakutsk II	1979.50	1985.50	68.1	-1188.4	77.8	25.0	25.0	25.0
Yangi-Bazar	1979.50	1981.50	-277.3	39.7	-95.6	25.0	25.0	25.0
Yangi-Bazar II	1982.50	1987.50	-277.3	39.7	-95.6	25.0	25.0	25.0
Yellow-Knife	1979.50	1986.50	400.9	-207.3	127.3	25.0	25.0	25.0
Yuzhno Sakh IV	1979.50	1984.50	-89.6	-62.5	97.4	25.0	25.0	25.0
Zaymishche III	1979.50	1987.50	-121.4	-116.5	117.2	25.0	25.0	25.0

Table 2. General Data Set Information for Post 1980 Land and Selected Aeromagnetic and Marine Surveys.

Post 1980 Land Survey from 1980.0 to 1982.5

Component	Count	Standard Deviation	Average Time (yr)
Z	470	412 nT	1980.567
D	1003	0.86°	1980.543
I	6	0.41°	1980.500
H	456	301 nT	1980.570
B	8	412 nT	1980.882

Post 1980 Land Survey from 1982.5 to 1987.5

Component	Count	Standard Deviation	Average Time (yr)
X	6	290 nT	1984.370
Y	7	329 nT	1984.370
Z	284	447 nT	1984.625
D	604	0.73°	1984.514
I	103	0.53°	1984.199
H	302	317 nT	1984.385
B	203	407 nT	1984.034

Project Magnet Collection 1 from 1980.0 to 1982.5

Component	Count	Standard Deviation	Average Time (yr)
X	286	371 nT	1981.408
Y	283	334 nT	1981.408
Z	289	467 nT	1981.408

Project Magnet Collection 1 from 1982.5 to 1987.5

Component	Count	Standard Deviation	Average Time (yr)
X	227	356 nT	1983.034
Y	256	418 nT	1983.011
Z	218	505 nT	1983.021

Project Magnet Collection 2 from 1984.0 to 1985.0

Component	Count	Standard Deviation	Average Time (yr)
X	183	285 nT	1984.872
Y	183	285 nT	1984.872
Z	183	404 nT	1984.872

Project Magnet Collection 2 from 1985.0 to 1986.0

Component	Count	Standard Deviation	Average Time (yr)
X	42	285 nT	1985.183
Y	42	285 nT	1985.183
Z	42	404 nT	1985.183

Total-Intensity Marine from 1980.0 to 1982.5

Component	Count	Standard Deviation	Average Time (yr)
B	715	390 nT	1981.037

Total-Intensity Marine from 1982.5 to 1987.5

Component	Count	Standard Deviation	Average Time (yr)
B	275	400 nT	1984.212

Composite Data Set

Component	Count	Standard Deviation	Average Time (yr)
X	744	328 nT	1982.993
Y	771	329 nT	1982.995
Z	1486	435 nT	1982.527
D	1607	0.80°	1982.036
I	109	0.51°	1983.995
H	758	307 nT	1982.090
B	1202	395 nT	1982.269

Table 3. General Data Set Information for the Project Magnet White Sands Survey and the Remaining Post 1980 Marine Surveys

Project Magnet White Sands Survey

Component	Count	Standard Deviation	Average Time (yr)
X	271	285 nT	1989.217
Y	270	285 nT	1989.217
Z	278	404 nT	1989.217

Marine Survey from 1980.0 to 1981.0

Component	Count	Standard Deviation	Average Time (yr)
B	1100	333 nT	1980.454

Marine Survey from 1981.0 to 1982.0

Component	Count	Standard Deviation	Average Time (yr)
B	500	339 nT	1981.503

Marine Survey from 1983.0 to 1984.0

Component	Count	Standard Deviation	Average Time (yr)
B	200	336 nT	1983.409

Marine Survey from 1984.0 to 1985.0

Component	Count	Standard Deviation	Average Time (yr)
B	400	356 nT	1984.418

Marine Survey from 1985.0 to 1986.0

Component	Count	Standard Deviation	Average Time (yr)
B	307	345 nT	1985.447

Marine Survey from 1986.0 to 1987.0

Component	Count	Standard Deviation	Average Time (yr)
B	90	328 nT	1986.417

Marine Survey from 1987.0 to 1988.0

Component	Count	Standard Deviation	Average Time (yr)
B	99	344 nT	1987.348

Composite Data Set

Component	Count	Standard Deviation	Average Time (yr)
X	271	285 nT	1989.217
Y	270	285 nT	1989.217
Z	278	404 nT	1989.217
B	2696	339 nT	1982.477

Table 4. General Data Set Information for DE-2 Satellite Data

Component	Count	Standard Deviation	Average Time (yr)
B	5100	26 nT	1982.284

Table 5. GSFC IBM-3081/MVS-TSO File Names for the Observation Data Sets

Observation Data Set	File Name
Observatory data	XR1RB.OBSERV.A1979.NFDST.DATA
Survey data	XRJRR.SDIMOD.ALL8089.SURVEY.DATA
DE-2 satellite data	XRJRR.DE2.NEWFIT.BWT.DATA

Table 6. GSFC IBM-3081/MVS-TSO Global File Names for the GSFC(5/89-X) Series

Model	File Name
MAGSAT a priori	XRTJS.GLOBAL.MAGSAT.F1310.DATA
GSFC(5/89-1)	does not exist
GSFC(5/89-2)	does not exist
GSFC(5/89-3)	XRTJS.RGLOBAL.MOSRV2.F1310.DATA
GSFC(5/89-4)	XRTJS.RGLOBAL.MOSDE2.F1310.DATA
GSFC(5/89-5)	XRTJS.GLOBAL.OWSAND.F1310.DATA

TABLE 7: Coefficient Differences: GSFC(5/89-3) minus GSFC(5/89-4).

			Main Field			Secular Variation		
g/h	n	m	Diff.	σ	Degree σ of Diff.	Diff.	σ	Degree σ of Diff.
g	1	0	0.2	4.949747		-2.3	0.295296	
g	1	1	0	4.949747		0.8	0.460977	
h	1	1	-0.1	4.949747	0.124721	1	0.467546	1.510702
g	2	0	0	1.979898		1.8	0.272946	
g	2	1	0	1.979898		0.5	0.277848	
h	2	1	0	1.979898		-0.4	0.291547	
g	2	2	0	1.979898		-0.5	0.425205	
h	2	2	0	1.979898	0	-0.2	0.411096	0.854634
g	3	0	-0.1	2.828427		1.4	0.255538	
g	3	1	0.1	2.828427		-0.8	0.280178	
h	3	1	0.1	2.828427		-1.5	0.286006	
g	3	2	0.1	2.828427		-0.2	0.274590	
h	3	2	0	2.828427		-0.2	0.274590	
g	3	3	0	2.828427		0	0.389486	
h	3	3	-0.1	2.828427	0.083299	0.4	0.389486	0.842978
g	4	0	0	1.272792		0.2	0.233238	
g	4	1	0.1	1.272792		-0.7	0.241867	
h	4	1	0	1.272792		0.5	0.238537	
g	4	2	0.1	1.272792		-0.5	0.266270	
h	4	2	0	1.272792		0.9	0.258069	
g	4	3	0	1.272792		0.6	0.260768	
h	4	3	0	1.272792		0.1	0.266270	
g	4	4	0	1.272792		-0.1	0.375366	
h	4	4	0	1.272792	0.041573	0	0.361247	0.484067
g	5	0	0.1	0.989949		-0.8	0.219544	
g	5	1	0	0.989949		0.4	0.224722	
h	5	1	-0.1	0.989949		0.5	0.230217	
g	5	2	0	0.989949		0.9	0.246981	
h	5	2	0	0.989949		0.5	0.224722	
g	5	3	-0.1	0.989949		0.4	0.252388	
h	5	3	-0.1	0.989949		0.3	0.258069	
g	5	4	-0.1	0.989949		0.4	0.272029	
h	5	4	0	0.989949		0	0.252388	
g	5	5	0.1	0.989949		-0.4	0.347131	
h	5	5	0	0.989949	0.071581	-0.3	0.361247	0.471151
g	6	0	0.1	0.707106		-0.5	0.210950	
g	6	1	0	0.707106		0.3	0.219544	
h	6	1	0	0.707106		0	0.210950	
g	6	2	-0.1	0.707106		0.2	0.224722	
h	6	2	0.1	0.707106		-0.2	0.216333	
g	6	3	0	0.707106		-0.7	0.224722	

h	6	3	0	0.707106		-0.6	0.230217	
g	6	4	0	0.707106		-0.4	0.258069	
h	6	4	0	0.707106		-0.2	0.230217	
g	6	5	-0.1	0.707106		0.8	0.244131	
h	6	5	0	0.707106		-0.6	0.258069	
g	6	6	0.1	0.707106		-0.3	0.333016	
h	6	6	0	0.707106	0.061538	-0.2	0.333016	0.407329
g	7	0	-0.1	0.565685		0.8	0.197230	
g	7	1	0	0.565685		-0.2	0.197230	
h	7	1	0	0.565685		-0.1	0.202484	
g	7	2	0	0.565685		-0.3	0.210950	
h	7	2	0	0.565685		-0.3	0.194164	
g	7	3	0	0.565685		-0.1	0.210950	
h	7	3	0	0.565685		0.3	0.208086	
g	7	4	0	0.565685		-0.2	0.238537	
h	7	4	0	0.565685		0.2	0.216333	
g	7	5	0	0.565685		-0.2	0.236008	
h	7	5	0	0.565685		0.5	0.244131	
g	7	6	0.1	0.565685		-0.4	0.25	
h	7	6	-0.1	0.565685		0.7	0.244131	
g	7	7	-0.1	0.565685		0.7	0.333016	
h	7	7	0	0.565685	0.049888	-0.2	0.318904	0.401995
g	8	0	0	0.565685		0.4	0.188679	
g	8	1	0	0.565685		0	0.188679	
h	8	1	0	0.565685		0.2	0.180277	
g	8	2	0	0.565685		-0.4	0.188679	
h	8	2	0	0.565685		0.1	0.188679	
g	8	3	0.1	0.565685		-0.1	0.188679	
h	8	3	0	0.565685		0	0.186010	
g	8	4	0	0.565685		0.3	0.222036	
h	8	4	0	0.565685		0	0.194164	
g	8	5	-0.1	0.565685		0.2	0.216333	
h	8	5	0	0.565685		0.1	0.230217	
g	8	6	0.1	0.565685		0	0.236008	
h	8	6	0	0.565685		0.1	0.236008	
g	8	7	-0.1	0.565685		0.2	0.236008	
h	8	7	0.1	0.565685		-0.7	0.236008	
g	8	8	0.1	0.565685		-0.6	0.304795	
h	8	8	0	0.565685	0.058232	0.5	0.318904	0.312927
g	9	0	0	0.424264		-0.5	0.166433	
g	9	1	0	0.424264		0.1	0.174928	
h	9	1	0	0.424264		0.2	0.166433	
g	9	2	0	0.424264		0.1	0.174928	
h	9	2	0	0.424264		0.2	0.174928	
g	9	3	0	0.424264		0.2	0.166433	
h	9	3	0	0.424264		-0.1	0.180277	
g	9	4	0	0.424264		0.2	0.186010	
h	9	4	0	0.424264		0	0.174928	
g	9	5	0	0.424264		-0.3	0.194164	

h	9	5	0	0.424264		-0.3	0.216333	
g	9	6	0	0.424264		0.2	0.216333	
h	9	6	0.1	0.424264		-0.7	0.208086	
g	9	7	0	0.424264		-0.7	0.230217	
h	9	7	0	0.424264		0.6	0.236008	
g	9	8	0	0.424264		-0.7	0.236008	
h	9	8	0.1	0.424264		-0.7	0.236008	
g	9	9	0	0.424264		0.1	0.298328	
h	9	9	0	0.424264	0.030689	0.1	0.297321	0.383163
g	10	0	0	0.424264		0.1	0.144222	
g	10	1	0	0.424264		0	0.144222	
h	10	1	0	0.424264		0.1	0.15	
g	10	2	0	0.424264		0	0.15	
h	10	2	0	0.424264		0.1	0.15	
g	10	3	0	0.424264		0	0.158113	
h	10	3	0	0.424264		-0.1	0.15	
g	10	4	0	0.424264		0.1	0.164012	
h	10	4	0	0.424264		0.2	0.15	
g	10	5	0	0.424264		0.1	0.158113	
h	10	5	0	0.424264		0.1	0.172046	
g	10	6	0	0.424264		0	0.186010	
h	10	6	0	0.424264		0.3	0.186010	
g	10	7	-0.1	0.424264		0.1	0.186010	
h	10	7	0	0.424264		-0.1	0.186010	
g	10	8	0	0.424264		0.7	0.2	
h	10	8	0	0.424264		0.3	0.2	
g	10	9	0	0.424264		0.4	0.214009	
h	10	9	0	0.424264		-0.2	0.214009	
g	10	10	0	0.424264		-0.3	0.284253	
h	10	10	0	0.424264	0.021295	-0.4	0.304795	0.233284

Table 8. General Statistical Summary for Selected Models
Units are nT, Degrees

MODEL	||	GSFC(5/89) -4		GSFC(4/89 -1		-2		-3		-4	
DATA TYPE	Number of Points	Mean	σ	Mean	σ	Mean	σ	Mean	σ	Mean	σ
Observatory:											
X	1055	-0.3	194.7	-15.7	192.4	28.6	212.2	26.2	211.8	-2.3	184.66
Y	1055	-26.4	235.2	-28.7	235.5	-21.6	261.1	-21.6	260.4	-12.2	225.9
Z	1055	-20.7	391.9	-22.2	394.3	-27.4	400.0	-20.8	399.1	-38.7	397.5
DE-2:											
B	5100	-1.8	21.9								
SURVEY:											
X	1015	-6.6	88.9	-7.3	100.7	18.5	130	15.1	126.3	4.7	120.4
Y	1041	21.2	103.2	0.7	113.4	-1.3	175.0	0.3	170.8	-10.2	138.7
Z	1788	-25.2	90.6	-19.1	107.6	-2.6	148	-0.4	145.0	-38.4	129.7
H	994	6.7	85.9	-10.8	90.6	25.9	111.0	18.1	104.6	33.5	110.2
B	4060	10.0	74.7	12.8	119.2	8.4	105.1	10.4	109.1	2.6	156.1
D($x10^{-3}$)	1879	-0.08	4.0	-0.74	4.1	-0.91	4.1	0.79	4.0	2.2	4.5
I($x10^{-3}$)	202	-0.07	3.0	0.08	2.9	-1.5	3.3	-7.1	3.3	-1.0	2.6

Table 9. **General Data Set Information for GSFC(4/89-X) Composite** Survey

Component	Count	Standard Deviation	Average Time (yr)
X	1015	286 nT	1987.238
Y	1041	286 nT	1987.228
Z	1788	417 nT	1986.511
D	1879	0.79°	1984.966
I	202	1.43°	1985.000
H	994	324 nT	1984.889
B	4060	361 nT	1985.030

Table 10: **SUMMARY OF OBSERVATORY BIAS INCORPORATION INTO THE GSFC(4/89-x) MODELS**

MODEL	OBSERVATORY BIASES UTILIZED
GSFC(4/89-1)	From GSFC(11/87) if available. Otherwise set to zero with no CWM. No adjustment made.
GSFC(4/89-2)	Biases adjusted.
GSFC(4/89-3)	From GSFC(4/89-2) or GSFC(11/87). Otherwise used CWM. No adjustment made.
GSFC(4/89-4)	No biases used. CWM used.

Table 11. **GSFC IBM-3081/MVS-TSO Global File Names for the GSFC(4/89-X) Series**

Model	File Name
GSFC(4/89-1)	XRJRR.GLOBAL.A1984.DATA4
GSFC(4/89-2)	XRJRR.GLOBBB.A1984.DATA1
GSFC(4/89-3)	does not exist
GSFC(4/89-4)	XRJRR.GLOBAL.A1984.DATA3

TABLE 12: Coefficient Differences Between the GSFC(4/89-x) Models.

			Model -x minus model -1			Model -x minus model -2		
			..-2	..-3	..-4	..-1	..-3	..-4
g/h	n	m						
g	1	0	25.2	19.3	34	-25.2	-5.9	8.8
g	1	1	-47	-41.2	-15.4	47	5.8	31.6
h	1	1	-39.9	-44.4	-6.4	39.9	-4.5	33.5
g	2	0	5.8	7.2	12.1	-5.8	1.4	6.3
g	2	1	14.5	6.3	52.5	-14.5	-8.2	38
h	2	1	22.2	16.2	25.6	-22.2	-6	3.4
g	2	2	33.5	36.9	-18.2	-33.5	3.4	-51.7
h	2	2	25.9	29.2	50.1	-25.9	3.3	24.2
g	3	0	7	7.5	-1.6	-7	0.5	-8.6
g	3	1	2	2.1	-23.6	-2	0.1	-25.6
h	3	1	-3.8	3.5	-43.8	3.8	7.3	-40
g	3	2	5.6	0.8	10.9	-5.6	-4.8	5.3
h	3	2	-10.7	-8.7	-23.5	10.7	2	-12.8
g	3	3	-68.7	-62.5	-11.4	68.7	6.2	57.3
h	3	3	-11.2	-5.7	14.1	11.2	5.5	25.3
g	4	0	2.9	8.9	30.1	-2.9	6	27.2
g	4	1	-9.5	-6.9	-17.2	9.5	2.6	-7.7
h	4	1	12.7	17.1	23.1	-12.7	4.4	10.4
g	4	2	-40.8	-39	-19.4	40.8	1.8	21.4
h	4	2	21.2	20.3	-7	-21.2	-0.9	-28.2
g	4	3	1.4	-1.5	-26.2	-1.4	-2.9	-27.6
h	4	3	1.8	2.4	-28.9	-1.8	0.6	-30.7
g	4	4	44	48.4	-43.7	-44	4.4	-87.7
h	4	4	23.7	20.4	3.5	-23.7	-3.3	-20.2
g	5	0	4.8	-4.7	-11.1	-4.8	-9.5	-15.9
g	5	1	-19.5	-21.5	-7.8	19.5	-2	11.7
h	5	1	15.4	4	-7.8	-15.4	-11.4	-23.2
g	5	2	-2.1	0.9	-12.8	2.1	3	-10.7
h	5	2	-5.9	-5.3	-11.9	5.9	0.6	-6
g	5	3	42.4	42.2	44.3	-42.4	-0.2	1.9
h	5	3	-8.6	-11.8	36	8.6	-3.2	44.6
g	5	4	8.1	3.4	3.2	-8.1	-4.7	-4.9
h	5	4	19.8	23.8	7.5	-19.8	4	-12.3
g	5	5	-53.4	-53.7	-16.6	53.4	-0.3	36.8
h	5	5	-29.1	-34.5	-18.1	29.1	-5.4	11
g	6	0	-3.3	-0.6	-32	3.3	2.7	-28.7
g	6	1	14	11.7	8.1	-14	-2.3	-5.9
h	6	1	-13.2	-5	10.9	13.2	8.2	24.1
g	6	2	11.2	4.8	28.9	-11.2	-6.4	17.7
h	6	2	-2.3	-1.2	13.8	2.3	1.1	16.1
g	6	3	-17.7	-15.8	-31.5	17.7	1.9	-13.8
h	6	3	13	12.8	-26.6	-13	-0.2	-39.6

g	6	4	-9	-10	15.5	9	-1	24.5
h	6	4	-17.3	-16.7	4.9	17.3	0.6	22.2
g	6	5	1.5	-0.7	12.4	-1.5	-2.2	10.9
h	6	5	-14.8	-10.4	-30	14.8	4.4	-15.2
g	6	6	15.9	17.6	10.7	-15.9	1.7	-5.2
h	6	6	26.8	27.3	-34.5	-26.8	0.5	-61.3
g	7	0	-0.8	5.2	25.4	0.8	6	26.2
g	7	1	-7.2	-4	-8.8	7.2	3.2	-1.6
h	7	1	0.9	-3.1	13.3	-0.9	-4	12.4
g	7	2	-6.8	-0.9	-15.3	6.8	5.9	-8.5
h	7	2	8.6	10.7	-12.8	-8.6	2.1	-21.4
g	7	3	3.6	3.1	1.1	-3.6	-0.5	-2.5
h	7	3	-12.3	-5.9	-27.9	12.3	6.4	-15.6
g	7	4	-5.4	-3.9	-2.4	5.4	1.5	3
h	7	4	8.4	6.1	-2.3	-8.4	-2.3	-10.7
g	7	5	-3.9	-3	-33.5	3.9	0.9	-29.6
h	7	5	13	12.1	27	-13	-0.9	14
g	7	6	3.2	0.1	-3.6	-3.2	-3.1	-6.8
h	7	6	-1.8	0.9	10.7	1.8	2.7	12.5
g	7	7	-25.4	-23.7	-1.8	25.4	1.7	23.6
h	7	7	-9.1	-14.1	-8	9.1	-5	1.1
g	8	0	1.4	-3.4	-18.1	-1.4	-4.8	-19.5
g	8	1	-11.9	-11.5	-6.9	11.9	0.4	5
h	8	1	7.2	6.9	6.7	-7.2	-0.3	-0.5
g	8	2	-3.8	-6.6	-11.6	3.8	-2.8	-7.8
h	8	2	8.1	4.9	10.2	-8.1	-3.2	2.1
g	8	3	-3.4	-3.4	4.5	3.4	0	7.9
h	8	3	12.6	8.9	40.4	-12.6	-3.7	27.8
g	8	4	-1.7	2.8	-16.6	1.7	4.5	-14.9
h	8	4	3.2	4.9	-3.2	-3.2	1.7	-6.4
g	8	5	10.6	10.6	32.3	-10.6	0	21.7
h	8	5	13.5	10	8.7	-13.5	-3.5	-4.8
g	8	6	-8.5	-8.2	-2.2	8.5	0.3	6.3
h	8	6	-11.2	-14.2	12.9	11.2	-3	24.1
g	8	7	3.7	1.1	14.2	-3.7	-2.6	10.5
h	8	7	-15.1	-11.2	-14.1	15.1	3.9	1
g	8	8	22	20	27	-22	-2	5
h	8	8	11.9	4.3	24.6	-11.9	-7.6	12.7
g	9	0	0.3	0.8	7.3	-0.3	0.5	7
g	9	1	-2.5	-4.2	4.4	2.5	-1.7	6.9
h	9	1	6.6	8.1	1.7	-6.6	1.5	-4.9
g	9	2	-5.3	-5.7	1.3	5.3	-0.4	6.6
h	9	2	-3.2	-2.9	-7.7	3.2	0.3	-4.5
g	9	3	-0.2	-0.6	-7.7	0.2	-0.4	-7.5
h	9	3	-5.7	-5.4	-2.9	5.7	0.3	2.8
g	9	4	14	12.2	8.3	-14	-1.8	-5.7
h	9	4	-5.9	-6.5	-7.3	5.9	-0.6	-1.4
g	9	5	-6.2	-6.5	-7.7	6.2	-0.3	-1.5
h	9	5	-8.1	-6.8	0.1	8.1	1.3	8.2

g	9	6	0	-0.7	0.9	0	-0.7	0.9
h	9	6	-15	-15	-1.3	15	0	13.7
g	9	7	13.5	13.7	13.3	-13.5	0.2	-0.2
h	9	7	6.4	4.3	-8.9	-6.4	-2.1	-15.3
g	9	8	-0.9	0.5	-7.5	0.9	1.4	-6.6
h	9	8	1.9	6.4	1	-1.9	4.5	-0.9
g	9	9	-7.6	-11	-7.5	7.6	-3.4	0.1
h	9	9	-1	-5	4.3	1	-4	5.3
g	10	0	-4.9	-4.4	-5.1	4.9	0.5	-0.2
g	10	1	3.1	3	1.1	-3.1	-0.1	-2
h	10	1	-9.1	-9.7	1.7	9.1	-0.6	10.8
g	10	2	2.8	2.6	1.9	-2.8	-0.2	-0.9
h	10	2	-8.5	-6.8	-3.9	8.5	1.7	4.6
g	10	3	4.1	4.5	2.4	-4.1	0.4	-1.7
h	10	3	2.3	2.4	1.7	-2.3	0.1	-0.6
g	10	4	-6.1	-6.6	3.1	6.1	-0.5	9.2
h	10	4	5.9	5.1	4.4	-5.9	-0.8	-1.5
g	10	5	-6.5	-6.5	-0.3	6.5	0	6.2
h	10	5	-8.2	-7.4	-4.9	8.2	0.8	3.3
g	10	6	8	9.1	-4.1	-8	1.1	-12.1
h	10	6	8	7.5	3.6	-8	-0.5	-4.4
g	10	7	1.2	1.9	-6.7	-1.2	0.7	-7.9
h	10	7	9	9.5	5.9	-9	0.5	-3.1
g	10	8	-10.2	-11.9	1.7	10.2	-1.7	11.9
h	10	8	1	0.3	-0.4	-1	-0.7	-1.4
g	10	9	3.2	6.1	2.4	-3.2	2.9	-0.8
h	10	9	-2.5	-2.9	-4.8	2.5	-0.4	-2.3
g	10	10	-4.3	-5.2	-5.8	4.3	-0.9	-1.5
h	10	10	-0.2	1.4	2.5	0.2	1.6	2.7

TABLE 13: Degree Statistics of Model Differences in Table 12.

	Model -x minus model -1			Model -x minus model -2		
Degree	..-2	..-3	..-4	..-1	..-3	..-4
1	32.4	29.3	21.4	32.4	5.2	11.2
2	9.5	12.1	26.1	9.5	4.9	30.5
3	24.3	22.4	19.2	24.3	3.9	30.3
4	22.3	22.5	23.0	22.3	3.11	32.8
5	24.5	24.8	20.1	24.5	4.6	20.4
6	14.0	12.7	22.1	14.0	3.4	25.9
7	9.2	8.8	16.3	9.2	3.5	15.4
8	10.0	9.0	17.0	10.0	3.0	12.5
9	7.1	7.3	6.3	7.1	1.8	6.7
10	6.0	6.2	3.7	6.0	1.0	5.7

TABLE 14: **Secular Variation Coefficient Differences Between the GSFC(4/89-x) Models.**

Model -x minus model -1

g/h	n	m	..-2	..-3	..-4
g	1	0	1.8	0	6.8
g	1	1	-0.5	-0.5	3
h	1	1	-2.2	-3.9	1.8
g	2	0	-1.5	-0.7	1.3
g	2	1	2.5	0.7	10.4
h	2	1	2.3	1.2	5.4
g	2	2	-1.7	-0.4	-5.4
h	2	2	-0.1	1.1	7
g	3	0	1.6	1.5	-1.8
g	3	1	-2.6	-2.5	-5.6
h	3	1	-0.7	0.7	-7.8
g	3	2	2	2	5.4
h	3	2	-2.3	-2.3	-7.4
g	3	3	-1.2	-0.6	2.5
h	3	3	0.8	2.6	5
g	4	0	-2.6	-1.8	5
g	4	1	0.6	1.1	-4.6
h	4	1	-1.6	0	0.9
g	4	2	-2.2	-2.5	-2.8
h	4	2	3	3.2	-1.1
g	4	3	-2.5	-3.3	-7.3
h	4	3	-0.9	-0.8	-8.1
g	4	4	0.1	0.8	-8.6
h	4	4	0.1	-0.8	-1.2
g	5	0	1.6	0.3	-2
g	5	1	0.8	0.5	3.2
h	5	1	3.5	0.8	-0.9
g	5	2	0	0.2	-3
h	5	2	-1.9	-1.4	-1.7
g	5	3	3.7	3.8	6.1
h	5	3	0.6	0	9.3
g	5	4	-0.2	-0.3	0.6
h	5	4	1.9	2.5	2
g	5	5	-0.1	-0.9	0
h	5	5	-0.4	-0.8	-0.3
g	6	0	0.3	0.9	-5.8
g	6	1	-0.6	-0.7	0.8
h	6	1	-2.5	-1.2	1.8
g	6	2	1.8	0.7	4.2
h	6	2	0.1	0.3	2.6
g	6	3	-2.3	-1.7	-5.1
h	6	3	-0.6	-0.6	-6.6

g	6	4	0.2	0.4	2.5
h	6	4	-3.2	-2.7	0.4
g	6	5	1	0	1
h	6	5	-0.4	0.3	-5.3
g	6	6	-1.2	-0.5	2.4
h	6	6	1	1.5	-6.4
g	7	0	-1.2	0.1	4.1
g	7	1	-0.6	-0.4	-1.1
h	7	1	1.1	0.8	1.6
g	7	2	-1.7	-0.6	-2.8
h	7	2	0.4	0.5	-2.7
g	7	3	0.1	0.4	2.3
h	7	3	-0.5	0.9	-4.4
g	7	4	-0.2	-0.3	-0.5
h	7	4	2.5	2.1	0.6
g	7	5	-1.9	-1.8	-7.3
h	7	5	0.4	0.4	3.3
g	7	6	0.1	-0.4	-1.8
h	7	6	-1.5	-1.4	2.3
g	7	7	0.6	0.3	2.1
h	7	7	0.7	0.1	-3.1
g	8	0	0.6	-0.2	-2
g	8	1	0	-0.2	0.9
h	8	1	0.4	0.1	1
g	8	2	0.4	-0.2	-2.2
h	8	2	0.4	0.3	0.6
g	8	3	0	-0.1	-0.1
h	8	3	0.4	-0.1	5.8
g	8	4	-0.3	0.5	-1.1
h	8	4	-0.4	-0.5	-0.4
g	8	5	1.5	1.7	5
h	8	5	0.6	0.1	0.4
g	8	6	0.3	0.4	0.7
h	8	6	0.5	-0.7	3.5
g	8	7	0	-0.5	1.5
h	8	7	-0.6	0.4	-2.7
g	8	8	1.1	0.9	3.4
h	8	8	-0.6	-2.1	3.1

Table 15: MODEL STATISTICS BY YEAR FOR OBSERVATORY DATA

MODEL	STATISTIC	1983.5	1984.5	1985.5	1986.5	1987.5	1988.5
(5/89-4)	Points	146	145	129	100	87	6
	mean x	1.4	-0.5	12.7	-20.9	-13.8	20.9
	sigma x	204.8	191.9	208.8	196.1	191.3	173.4
	mean y	-28.8	-26.7	-31.6	-10.4	-23.7	55.4
	sigma y	240.3	238	249	228.9	263.8	79
	mean z	-12.5	-14.7	-30.6	-41.1	-49.5	-54.8
	sigma z	383.4	386.2	406.3	438	458.2	193.9
(4/89-1)	Points	146	145	129	100	87	6
	mean x	-14.9	-17	-4.5	-32.6	-23.2	21.5
	sigma x	201.6	187.9	202.5	189.6	185.1	191.7
	mean y	-32	-27.6	-33.3	-12.9	-28.2	54.1
	sigma y	240.4	237.2	248.2	232.1	265.3	67.3
	mean z	-15.9	-13.7	-31.3	-39	-45.3	-64
	sigma z	385.5	387.9	406.6	439.9	456.1	183.7
(4/89-3)	Points	146	145	129	100	87	6
	mean x	29.5	25.6	40	6	14.7	67.2
	sigma x	215	212.5	223.2	220	207.1	169.8
	mean y	-24.3	-22.7	-28	-7.6	-16.5	91
	sigma y	264.5	264.2	275	257.4	289.5	104.8
	mean z	-17.6	-17.4	-28.5	-48.3	-33.8	-164
	sigma z	388.4	394.7	413.7	447.2	453.6	173.6

Table 15(Continued): MODEL STATISTICS BY YEAR FOR OBSERVATORY DATA

MODEL	STATISTIC	1983.5	1984.5	1985.5	1986.5	1987.5	1988.5
(5/89-1)	Points	146	145	129	100	87	6
	mean x	1.4	0.1	12.8	-21	-11.1	27.3
	sigma x	204.5	191	207.3	196.2	192.2	170.4
	mean y	-28.9	-26.4	-31.7	-11.4	-25	56
	sigma y	239.7	237.5	248.1	228.4	262.3	77.7
	mean z	-11	-13.2	-28.5	-37.7	-42.4	-64.7
	sigma z	383.1	386.6	405.4	437.9	456.2	182.4
(4/89-2)	Points	146	145	129	100	87	6
	mean x	31.8	28.1	41.7	7.4	15.7	66.1
	sigma x	215	213.2	222.7	219.7	207.2	173.1
	mean y	-24.6	-22.1	-26.5	-6.7	-16.1	88.2
	sigma y	265.6	265.1	275.4	257.4	289.4	102.9
	mean z	-25	-21.4	-30.9	-50.9	-33.4	-158.7
	sigma z	389.1	395.7	414.1	447.1	454.4	172.9
(4/89-4)	Points	146	145	129	100	87	6
	mean x	-2	-4.7	14	-12.3	1	36.1
	sigma x	192	175.5	187.5	169.5	156.1	147.5
	mean y	-20	-17	-22.7	-9.6	-23.1	37.8
	sigma y	231	221.9	224.5	189.6	213.2	86.3
	mean z	-34.4	-31	-41.4	-62.7	-57.8	-67.9
	sigma z	375.1	389.3	419.4	468.3	501.4	181.3

Table 16: MODEL STATISTICS BY YEAR FOR SURVEY DATA

MODEL	STATISTIC	1983.5	1984.5	1985.5	1986.5	1987.5	1989.5
(4/89-1)	x-points	115	189	42	0	0	271
	mean x	-23.5	-14.8	-25.7	0	0	-16.4
	sigma x	67.4	134.9	83.5	0	0	50.8
	y-points	115	190	42	0	0	270
	mean y	-16.9	62.9	32.4	0	0	0.3
	sigma y	72.1	150.3	183.7	0	0	55.2
	z-points	137	361	44	37	0	278
	mean z	-11.4	-15.9	-202	-29.1	0	12.2
	sigma z	81.3	108.5	133.7	151.9	0	70
	H-points	22	187	0	18	0	0
	mean h	28.2	-19.7	0	-76.1	0	0
	sigma H	85.1	77.6	0	302.6	0	0
	b-points	307	632	334	91	101	0
	mean b	-31.2	-22	8.9	45.4	13.8	0
	sigma b	100.4	99.4	119.7	97.9	129.5	0
(4/89-2)	x-points	115	189	42	0	0	271
	mean x	-40.6	-35.1	-22.1	0	0	-3.6
	sigma x	96.1	90.1	45.2	0	0	47.6
	y-points	115	190	42	0	0	270
	mean y	-23.6	26.7	33.4	0	0	-5.2
	sigma y	99.4	83.5	43.5	0	0	56.6
	z-points	137	361	44	37	0	278
	mean z	-45.4	-5.5	-49.1	9.8	0	8.1
	sigma z	101.4	94.3	43.9	138.5	0	66.9
	H-points	22	187	0	18	0	0
	mean h	61.2	0.9	0	17.7	0	0
	sigma H	92.1	74.4	0	279.2	0	0
	b-points	307	632	334	91	101	0
	mean b	1.34	-9.9	1.3	1.8	41.3	0
	sigma b	103.4	83.2	91	80.5	85.9	0

Table 16(Continued): MODEL STATISTICS BY YEAR FOR SURVEY DATA

MODEL	STATISTIC	1983.5	1984.5	1985.5	1986.5	1987.5	1989.5
(5/89-4)	x-points	115	189	42	0	0	271
	mean x	11.3	-31.1	-7.4	0	0	-46.4
	sigma x	58.2	96.1	45.4	0	0	50.3
	y-points	115	190	42	0	0	270
	mean y	-11.4	125.9	98.9	0	0	19.6
	sigma y	70.9	99.2	41	0	0	55.3
	z-points	137	361	44	37	0	278
	mean z	-2.4	-30.5	1.4	-45.9	0	10.1
	sigma z	67.1	91.7	37.3	148.6	0	64.2
	H-points	22	187	0	18	0	0
	mean h	36.6	2.7	0	-43.1	0	0
	sigma H	81.6	73.8	0	289.2	0	0
	b-points	307	632	334	91	101	0
	mean b	14.6	2.6	18.6	67.8	83.3	0
	sigma b	61.4	86.8	97.7	84.9	103.6	0
(4/89-3)	x-points	115	189	42	0	0	271
	mean x	-23	-35.8	-46.2	0	0	-6.5
	sigma x	97.3	97.4	57.1	0	0	47.4
	y-points	115	190	42	0	0	270
	mean y	-20.6	34	33.9	0	0	-5.5
	sigma y	89.2	89.3	39.2	0	0	57.2
	z-points	137	361	44	37	0	278
	mean z	-35.6	-9.8	-18.8	3.5	0	6.5
	sigma z	100.2	94.3	42	138.2	0	67.4
	H-points	22	187	0	18	0	0
	mean h	55.5	0.6	0	-4.4	0	0
	sigma H	90.7	73.8	0	282.5	0	0
	b-points	307	632	334	91	101	0
	mean b	1	-6.5	-4.2	2.6	27.1	0
	sigma b	107.3	83.8	90.7	82.7	87.2	0

Table 16(Continued): MODEL STATISTICS BY YEAR FOR SURVEY DATA

MODEL	STATISTIC	1983.5	1984.5	1985.5	1986.5	1987.5	1989.5
(4/89-4)	X-POINTS	115	189	42	0	0	271
	mean x	-42.4	-11.3	-21	0	0	-3.8
	sigma x	151.5	98.6	44.6	0	0	48
	y-points	115	190	42	0	0	270
	mean y	-17.9	39.7	18.5	0	0	-4
	sigma y	119.8	103	48.1	0	0	51.9
	z-points	137	361	44	37	0	278
	mean z	-54.5	-13.4	-104	-71.2	0	3.9
	sigma z	132.2	98.4	56	128	0	65.4
	H-points	22	187	0	18	0	0
	mean h	38	-13.2	0	-9.5	0	0
	sigma H	84.4	82.1	0	275.5	0	0
	b-points	307	632	334	91	101	0
	mean b	12.8	-9.5	12	15.7	-24.2	0
	sigma b	100.7	92.3	109.2	80.2	82.2	0

TABLE 17: Main Field Coefficient Differences: Specified model minus GSFC(5/89-4) at 1985.

g/h	n	m	(5/89-3)	(4/89-1)	(4/89-2)	(4/89-3)	(4/89-4)
g	1	0	-11.3	-1.9022	15.358	17.3978	2.103
g	1	1	4	-20.5155	-65.31	-59.51	-49.1485
h	1	1	4.9	-10.6486	-40.8444	-37.8457	-24.9884
g	2	0	9	-8.7214	3.6951	1.5663	-2.3557
g	2	1	2.5	-2.011	1.4615	1.2013	4.6146
h	2	1	-2	1.6912	13.7459	12.598	3.4718
g	2	2	-2.5	7.3971	48.3958	46.0615	13.0165
h	2	2	-1	27.2637	53.6048	51.6116	46.4867
g	3	0	6.9	8.8314	8.7738	9.7149	15.1712
g	3	1	-3.9	6.8207	20.2893	19.9482	7.9223
h	3	1	-7.4	6.1764	5.4641	6.5887	-3.2178
g	3	2	-0.9	12.433	9.211	4.411	-0.4864
h	3	2	-1	-6.555	-7.1097	-5.1097	2.5864
g	3	3	0	1.9809	-61.4259	-57.8725	-20.4466
h	3	3	1.9	-5.7968	-20.5256	-22.9654	-13.7518
g	4	0	1	-1.0974	13.2712	15.7424	6.9476
g	4	1	-3.4	2.8877	-9.2589	-8.8644	5.9783
h	4	1	2.5	-6.2851	13.4725	10.8149	12.845
g	4	2	-2.4	-2.8094	-33.9052	-30.7819	-9.8586
h	4	2	4.5	-2.1246	5.8424	4.0602	-4.2725
g	4	3	3	-4.233	8.1945	8.8233	1.7673
h	4	3	0.5	-7.6728	-1.9029	-1.744	-0.8437
g	4	4	-0.5	0.8249	44.3838	45.6961	-4.9405
h	4	4	0	8.1	31.3589	32.0288	16.8932
g	5	0	-3.9	-1.9191	-4.1767	-7.9424	-4.1971
g	5	1	2	4.0343	-18.9945	-19.6712	-17.8809
h	5	1	2.4	3.2029	3.1644	3.6741	-0.6272
g	5	2	4.5	-7.6602	-9.7602	-7.6424	-7.2272
h	5	2	2.5	-0.5686	1.9123	0.3068	-4.9699
g	5	3	1.9	-1.9298	24.1495	23.5084	15.4631
h	5	3	1.4	5.9343	-5.3123	-5.8657	0.912
g	5	4	1.9	-0.9	8.0822	3.8233	-0.3466
h	5	4	0	2.2932	13.7123	15.0657	0.9712
g	5	5	-1.9	4.4479	-48.511	-45.2822	-12.1521
h	5	5	-1.5	5.9945	-21.3411	-24.9767	-10.7822
g	6	0	-2.4	5.0479	0.4246	0.478	-1.3683
g	6	1	1.5	-7.2233	9.4233	7.5644	-2.6521
h	6	1	0	-3.9508	-6.1233	-3.6576	-0.9906
g	6	2	0.9	-1.7411	1.5191	-0.0288	8.6327
h	6	2	-0.9	1.6343	-1.1068	-0.889	3.9657
g	6	3	-3.5	-1.3262	-8.8809	-9.6275	-10.3301
h	6	3	-3	-1.3411	14.3055	14.1055	1.1715
g	6	4	-2	5.5288	-4.3534	-6.2356	10.0013

h	6	4	-1	1.2437	-1.9411	-3.5466	4.3793
g	6	5	3.9	-0.589	-3.5	-1.289	7.4
h	6	5	-3	-2.9055	-15.9411	-14.6288	-9.5272
g	6	6	-1.4	3.7492	24.9424	23.5547	3.8628
h	6	6	-1	-1.8	20.589	18.8835	-8.0696
g	7	0	3.9	-3.4809	1.0123	1.278	3.834
g	7	1	-1	0.2767	-4.2767	-1.9589	-3.6712
h	7	1	-0.5	5.4466	1.4945	-1.1822	11.689
g	7	2	-1.5	7.0013	7.7	8.7479	4.0521
h	7	2	-1.5	0.7589	7.5945	9.2534	-0.1314
g	7	3	-0.5	4.9534	8.1123	6.289	-4.0919
h	7	3	1.5	6.8068	-3.2877	-3.0631	-1.6848
g	7	4	-1	1.6424	-2.8754	-0.9343	1.4479
h	7	4	1	-1.9437	-4.5712	-5.1068	-6.8903
g	7	5	-1	1.1259	5.6068	6.0657	-0.1738
h	7	5	2.5	-7.8356	3.4	2.5	4.6081
g	7	6	-1.9	2.2233	4.9822	4.0877	6.5631
h	7	6	3.4	-4.1398	0.6767	2.9356	-3.5851
g	7	7	3.4	-1.2178	-29.2644	-26.2411	-12.2809
h	7	7	-1	4.5055	-7.6822	-10.0356	10.1796
g	8	0	2	6.4411	5.1945	3.9233	-2.8369
g	8	1	0	3.8822	-8.0178	-6.7356	-6.9877
h	8	1	1	-0.7822	4.6534	5.6767	1.5068
g	8	2	-2	-3.2534	-8.8178	-8.9712	-5.1492
h	8	2	0.5	-1.9712	4.3644	1.6055	5.5822
g	8	3	-0.4	-2.4589	-5.8589	-5.4178	2.4822
h	8	3	0	-8.9411	1.8945	0.4	5.8751
g	8	4	1.5	0.7411	0.3644	1.3356	-11.0068
h	8	4	0	-0.411	4.5534	6.6945	-1.8466
g	8	5	0.9	-8.3191	-4.3356	-5.2178	1.9259
h	8	5	0.5	1.2233	12.0767	10.7822	8.1589
g	8	6	0.1	0.6644	-9.1589	-9.3	-4.6233
h	8	6	0.5	2.4165	-10.989	-8.6958	-0.122
g	8	7	0.9	-7.3178	-3.6178	-4.0123	0.2657
h	8	7	-3.4	0.7767	-11.6767	-12.1877	-1.4136
g	8	8	-2.9	6.2275	23.3754	22.2576	18.2301
h	8	8	2.5	-1.3699	13.1767	12.1932	9.556
g	9	0	-2.5				
g	9	1	0.5				
h	9	1	1				
g	9	2	0.5				
h	9	2	1				
g	9	3	1				
h	9	3	-0.5				
g	9	4	1				
h	9	4	0				
g	9	5	-1.5				
h	9	5	-1.5				
g	9	6	1				

h	9	6	-3.4
g	9	7	-3.5
h	9	7	3
g	9	8	-3.5
h	9	8	-3.4
g	9	9	0.5
h	9	9	0.5
g	10	0	0.5
g	10	1	0
h	10	1	0.5
g	10	2	0
h	10	2	0.5
g	10	3	0
h	10	3	-0.5
g	10	4	0.5
h	10	4	1
g	10	5	0.5
h	10	5	0.5
g	10	6	0
h	10	6	1.5
g	10	7	0.4
h	10	7	-0.5
g	10	8	3.5
h	10	8	1.5
g	10	9	2
h	10	9	-1
g	10	10	-1.5
h	10	10	-2

TABLE 18: **Degree Statistics of Model Differences in Table 17.**

Model Degree	(5/89-3)	(4/89-1)	(4/89-2)	(4/89-3)	(4/89-4)
1	7.4	7.6	33.8	32.4	20.9
2	4.3	12.2	22.3	21.8	17.4
3	4.1	6.7	25.5	24.4	11.3
4	2.4	4.6	21.3	21.0	8.2
5	2.3	4.0	18.7	18.2	8.4
6	2.0	3.5	11.4	10.7	6.5
7	2.0	4.1	9.0	8.6	6.2
8	1.5	4.3	9.4	9.0	6.8

TABLE 19: Secular Variation Coefficient Differences:
Specified model minus GSFC(5/89-4).

g/h	n	m	(5/89-3)	(4/89-1)	(4/89-2)	(4/89-3)	(4/89-4)
g	1	0	-2.3	-5.1	-3.3	-5.1	1.7
g	1	1	0.8	-0.3	-0.8	-0.8	2.7
h	1	1	1	4.1	1.9	0.2	5.9
g	2	0	1.8	3.1	1.6	2.4	4.4
g	2	1	0.5	-2.1	0.4	-1.4	8.3
h	2	1	-0.4	-5.6	-3.3	-4.4	-0.2
g	2	2	-0.5	-0.7	-2.4	-1.1	-6.1
h	2	2	-0.2	5.2	5.1	6.3	12.2
g	3	0	1.4	0.6	2.2	2.1	-1.2
g	3	1	-0.8	1.1	-1.5	-1.4	-4.5
h	3	1	-1.5	1.4	0.7	2.1	-6.4
g	3	2	-0.2	-2.1	-0.1	-0.1	3.3
h	3	2	-0.2	2	-0.3	-0.3	-5.4
g	3	3	0	-0.6	-1.8	-1.2	1.9
h	3	3	0.4	-1.8	-1	0.8	3.2
g	4	0	0.2	3.3	0.7	1.5	8.3
g	4	1	-0.7	0.1	0.7	1.2	-4.5
h	4	1	0.5	0.6	-1	0.6	1.5
g	4	2	-0.5	2.5	0.3	0	-0.3
h	4	2	0.9	-2.5	0.5	0.7	-3.6
g	4	3	0.6	4.5	2	1.2	-2.8
h	4	3	0.1	1.8	0.9	1	-6.3
g	4	4	-0.1	-0.4	-0.3	0.4	-9
h	4	4	0	0.2	0.3	-0.6	-1
g	5	0	-0.8	-3.2	-1.6	-2.9	-5.2
g	5	1	0.4	-0.8	0	-0.3	2.4
h	5	1	0.5	-3.8	-0.3	-3	-4.7
g	5	2	0.9	0	0	0.2	-3
h	5	2	0.5	2.5	0.6	1.1	0.8
g	5	3	0.4	-4.3	-0.6	-0.5	1.8
h	5	3	0.3	-0.6	0	-0.6	8.7
g	5	4	0.4	0.6	0.4	0.3	1.2
h	5	4	0	-1.9	0	0.6	0.1
g	5	5	-0.4	1.2	1.1	0.3	1.2
h	5	5	-0.3	-0.4	-0.8	-1.2	-0.7
g	6	0	-0.5	0.1	0.4	1	-5.7
g	6	1	0.3	0.3	-0.3	-0.4	1.1
h	6	1	0	2.9	0.4	1.7	4.7
g	6	2	0.2	-1.3	0.5	-0.6	2.9
h	6	2	-0.2	-0.1	0	0.2	2.5
g	6	3	-0.7	2	-0.3	0.3	-3.1
h	6	3	-0.6	0.5	-0.1	-0.1	-6.1
g	6	4	-0.4	-0.7	-0.5	-0.3	1.8

h	6	4	-0.2	4.1	0.9	1.4	4.5
g	6	5	0.8	-1.1	-0.1	-1.1	-0.1
h	6	5	-0.6	-0.2	-0.6	0.1	-5.5
g	6	6	-0.3	1.3	0.1	0.8	3.7
h	6	6	-0.2	-1	0	0.5	-7.4
g	7	0	0.8	1.7	0.5	1.8	5.8
g	7	1	-0.2	0.9	0.3	0.5	-0.2
h	7	1	-0.1	-0.8	0.3	0	0.8
g	7	2	-0.3	1.5	-0.2	0.9	-1.3
h	7	2	-0.3	-0.3	0.1	0.2	-3
g	7	3	-0.1	0.1	0.2	0.5	2.4
h	7	3	0.3	0.5	0	1.4	-3.9
g	7	4	-0.2	0.5	0.3	0.2	0
h	7	4	0.2	-4.1	-1.6	-2	-3.5
g	7	5	-0.2	2.3	0.4	0.5	-5
h	7	5	0.5	-0.3	0.1	0.1	3
g	7	6	-0.4	-0.5	-0.4	-0.9	-2.3
h	7	6	0.7	2	0.5	0.6	4.3
g	7	7	0.7	-0.2	0.4	0.1	1.9
h	7	7	-0.2	-1.1	-0.4	-1	-4.2
g	8	0	0.4	-0.6	0	-0.8	-2.6
g	8	1	0	0	0	-0.2	0.9
h	8	1	0.2	0.2	0.6	0.3	1.2
g	8	2	-0.4	-1	-0.6	-1.2	-3.2
h	8	2	0.1	-0.3	0.1	0	0.3
g	8	3	-0.1	0	0	-0.1	-0.1
h	8	3	0	-0.1	0.3	-0.2	5.7
g	8	4	0.3	0.1	-0.2	0.6	-1
h	8	4	0	1.3	0.9	0.8	0.9
g	8	5	0.2	-1.9	-0.4	-0.2	3.1
h	8	5	0.1	-0.6	0	-0.5	-0.2
g	8	6	0	-0.3	0	0.1	0.4
h	8	6	0.1	-1	-0.5	-1.7	2.5
g	8	7	0.2	0.2	0.2	-0.3	1.7
h	8	7	-0.7	-0.2	-0.8	0.2	-2.9
g	8	8	-0.6	-1.7	-0.6	-0.8	1.7
h	8	8	0.5	0.7	0.1	-1.4	3.8

TABLE 20: **Degree Statistics of Model Differences** in Table 19.

Model Degree	(5/89-3)	(4/89-1)	(4/89-2)	(4/89-3)	(4/89-4)
1	1.5	3.8	2.1	2.3	1.8
2	0.85	3.8	3.0	3.7	6.4
3	0.8	1.5	1.3	1.3	3.9
4	0.5	2.0	0.8	0.6	4.7
5	0.5	2.0	0.7	1.3	3.6
6	0.4	1.6	0.4	0.8	4.3
7	0.4	1.5	0.5	0.9	3.2
8	0.3	0.8	0.4	0.7	2.3

Appendix A. Listing of Internal Field Static and Secular Variation Terms and, When Available, Their Estimated Uncertainties for GSFC(4/89-X) and GSFC(5/89-X) Series

GSFC(5/89) MODELS: Main Field Coefficients

Model			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	1	0	-29986.4	-29986.4	-29986.4	3.5	-29986.6	3.5	-29987.2	3.5
g	1	1	-1956.1	-1956.1	-1956.1	3.5	-1956.1	3.5	-1955.2	3.5
h	1	1	5604.2	5604.2	5604.2	3.5	5604.3	3.5	5603.9	3.5
g	2	0	-1996.9	-1996.9	-1996.9	1.4	-1996.9	1.4	-1996.9	1.4
g	2	1	3027.3	3027.3	3027.3	1.4	3027.3	1.4	3027.7	1.4
h	2	1	-2129.3	-2129.3	-2129.3	1.4	-2129.3	1.4	-2129.1	1.4
g	2	2	1662.6	1662.6	1662.6	1.4	1662.6	1.4	1661.4	1.4
h	2	2	-199.8	-199.8	-199.9	1.4	-199.9	1.4	-200.2	1.4
g	3	0	1281.6	1281.6	1281.6	2	1281.7	2	1282.2	2
g	3	1	-2180.6	-2180.6	-2180.6	2	-2180.7	2	-2180.8	2
h	3	1	-335.4	-335.4	-335.4	2	-335.5	2	-335	2
g	3	2	1250.8	1250.8	1250.8	2	1250.7	2	1250.9	2
h	3	2	271	271	271	2	271	2	270.9	2
g	3	3	833.1	833.1	833.1	2	833.1	2	833.7	2
h	3	3	-252.6	-252.6	-252.6	2	-252.5	2	-252.2	2
g	4	0	937.4	937.4	937.4	0.9	937.4	0.9	937.5	0.9
g	4	1	782.1	782.1	782.1	0.9	782	0.9	781.7	0.9
h	4	1	212.4	212.4	212.4	0.9	212.4	0.9	212.3	0.9
g	4	2	397.4	397.4	397.4	0.9	397.3	0.9	397.7	0.9
h	4	2	-256.6	-256.6	-256.6	0.9	-256.6	0.9	-256.8	0.9
g	4	3	-419.1	-419.1	-419.1	0.9	-419.1	0.9	-419.1	0.9
h	4	3	53	53	53	0.9	53	0.9	52.9	0.9
g	4	4	198.3	198.3	198.3	0.9	198.3	0.9	198	0.9
h	4	4	-297.3	-297.3	-297.3	0.9	-297.3	0.9	-297.7	0.9
g	5	0	-217.9	-217.9	-217.9	0.7	-218	0.7	-218.3	0.7
g	5	1	357.2	357.2	357.2	0.7	357.2	0.7	357.2	0.7
h	5	1	46	46	46	0.7	46.1	0.7	45.8	0.7
g	5	2	260.9	260.9	261	0.7	261	0.7	260.9	0.7
h	5	2	149.8	149.8	149.8	0.7	149.8	0.7	149.7	0.7
g	5	3	-74.4	-74.4	-74.4	0.7	-74.3	0.7	-74.5	0.7
h	5	3	-150.7	-150.7	-150.7	0.7	-150.6	0.7	-150.6	0.7
g	5	4	-162	-162	-162	0.7	-161.9	0.7	-162.3	0.7
h	5	4	-77.8	-77.8	-77.8	0.7	-77.8	0.7	-77.7	0.7
g	5	5	-47.9	-47.9	-47.9	0.7	-48	0.7	-48.4	0.7
h	5	5	92.1	92.1	92.1	0.7	92.1	0.7	91.9	0.7

Model			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	6	0	48.1	48.1	48.1	0.5	48	0.5	48.1	0.5
g	6	1	65.5	65.5	65.5	0.5	65.5	0.5	65.7	0.5
h	6	1	-14.8	-14.8	-14.8	0.5	-14.8	0.5	-14.6	0.5
g	6	2	41.9	41.9	41.9	0.5	42	0.5	41.8	0.5
h	6	2	93.2	93.2	93.2	0.5	93.1	0.5	93.3	0.5
g	6	3	-192.2	-192.2	-192.2	0.5	-192.2	0.5	-192.2	0.5
h	6	3	70.7	70.7	70.7	0.5	70.7	0.5	71	0.5
g	6	4	3.6	3.6	3.6	0.5	3.6	0.5	3.7	0.5
h	6	4	-43	-43	-43	0.5	-43	0.5	-43	0.5
g	6	5	13.7	13.7	13.7	0.5	13.8	0.5	13.8	0.5
h	6	5	-2.1	-2.2	-2.2	0.5	-2.2	0.5	-2.1	0.5
g	6	6	-107.6	-107.6	-107.6	0.5	-107.7	0.5	-107.7	0.5
h	6	6	17.2	17.2	17.2	0.5	17.2	0.5	17.6	0.5
g	7	0	71.9	71.9	71.9	0.4	72	0.4	72.2	0.4
g	7	1	-59.2	-59.2	-59.2	0.4	-59.2	0.4	-59.1	0.4
h	7	1	-82.6	-82.6	-82.6	0.4	-82.6	0.4	-82.4	0.4
g	7	2	1.7	1.7	1.7	0.4	1.7	0.4	1.8	0.4
h	7	2	-27.4	-27.4	-27.4	0.4	-27.4	0.4	-27.3	0.4
g	7	3	20.7	20.7	20.7	0.4	20.7	0.4	20.8	0.4
h	7	3	-5	-5	-5	0.4	-5	0.4	-4.9	0.4
g	7	4	-12.5	-12.5	-12.5	0.4	-12.5	0.4	-12.3	0.4
h	7	4	16.2	16.2	16.2	0.4	16.2	0.4	15.7	0.4
g	7	5	0.5	0.5	0.5	0.4	0.5	0.4	0.5	0.4
h	7	5	17.8	17.8	17.8	0.4	17.8	0.4	18.2	0.4
g	7	6	10.7	10.7	10.7	0.4	10.6	0.4	10.9	0.4
h	7	6	-23	-23	-23	0.4	-22.9	0.4	-22.8	0.4
g	7	7	-1.7	-1.7	-1.7	0.4	-1.6	0.4	-1.5	0.4
h	7	7	-9.8	-9.8	-9.8	0.4	-9.8	0.4	-10.3	0.4
g	8	0	18.5	18.5	18.5	0.4	18.5	0.4	18.5	0.4
g	8	1	6.5	6.5	6.5	0.4	6.5	0.4	6.3	0.4
h	8	1	6.8	6.8	6.8	0.4	6.8	0.4	6.5	0.4
g	8	2	-0.4	-0.4	-0.4	0.4	-0.4	0.4	-0.3	0.4
h	8	2	-17.7	-17.7	-17.7	0.4	-17.7	0.4	-17.6	0.4
g	8	3	-10.9	-10.9	-10.9	0.4	-11	0.4	-11	0.4
h	8	3	4.2	4.2	4.2	0.4	4.2	0.4	4.1	0.4
g	8	4	-7	-7	-7	0.4	-7	0.4	-6.9	0.4
h	8	4	-22.2	-22.2	-22.2	0.4	-22.2	0.4	-22.3	0.4
g	8	5	4.3	4.3	4.3	0.4	4.4	0.4	3.9	0.4
h	8	5	9.1	9.1	9.1	0.4	9.1	0.4	9.2	0.4
g	8	6	2.7	2.8	2.8	0.4	2.7	0.4	2.9	0.4
h	8	6	16	16	16	0.4	16	0.4	16.1	0.4
g	8	7	6	6	6	0.4	6.1	0.4	6.1	0.4
h	8	7	-13.1	-13.1	-13.1	0.4	-13.2	0.4	-13.3	0.4
g	8	8	-1.5	-1.5	-1.5	0.4	-1.6	0.4	-1.8	0.4
h	8	8	-14.9	-14.8	-14.8	0.4	-14.8	0.4	-14.7	0.4

Model			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	9	0	5.3	5.3	5.3	0.3	5.3	0.3	4.9	0.3
g	9	1	10.3	10.3	10.3	0.3	10.3	0.3	10.4	0.3
h	9	1	-20.8	-20.8	-20.8	0.3	-20.8	0.3	-20.9	0.3
g	9	2	1.4	1.4	1.4	0.3	1.4	0.3	1.3	0.3
h	9	2	15.5	15.5	15.5	0.3	15.5	0.3	15.5	0.3
g	9	3	-12.4	-12.4	-12.4	0.3	-12.4	0.3	-12.4	0.3
h	9	3	8.8	8.8	8.8	0.3	8.8	0.3	8.6	0.3
g	9	4	9.4	9.4	9.4	0.3	9.4	0.3	9.3	0.3
h	9	4	-5.2	-5.2	-5.2	0.3	-5.2	0.3	-4.9	0.3
g	9	5	-3.4	-3.4	-3.4	0.3	-3.4	0.3	-3.3	0.3
h	9	5	-6.3	-6.3	-6.3	0.3	-6.3	0.3	-6.2	0.3
g	9	6	-1.2	-1.2	-1.2	0.3	-1.2	0.3	-1.3	0.3
h	9	6	9.1	9.1	9.1	0.3	9	0.3	9.1	0.3
g	9	7	6.7	6.7	6.7	0.3	6.7	0.3	6.8	0.3
h	9	7	9.7	9.7	9.7	0.3	9.7	0.3	9.8	0.3
g	9	8	1.6	1.5	1.5	0.3	1.5	0.3	1.6	0.3
h	9	8	-5.9	-5.9	-5.9	0.3	-6	0.3	-5.5	0.3
g	9	9	-5.1	-5.1	-5.1	0.3	-5.1	0.3	-5.1	0.3
h	9	9	2.2	2.2	2.3	0.3	2.3	0.3	2.1	0.3
g	10	0	-3.4	-3.4	-3.4	0.3	-3.4	0.3	-3.3	0.3
g	10	1	-4	-4	-4	0.3	-4	0.3	-3.9	0.3
h	10	1	1.2	1.2	1.2	0.3	1.2	0.3	1.5	0.3
g	10	2	2.2	2.2	2.2	0.3	2.2	0.3	2.2	0.3
h	10	2	0.5	0.5	0.5	0.3	0.5	0.3	0.3	0.3
g	10	3	-5.5	-5.5	-5.5	0.3	-5.5	0.3	-5.4	0.3
h	10	3	2.6	2.6	2.6	0.3	2.6	0.3	2.6	0.3
g	10	4	-1.9	-1.9	-1.9	0.3	-1.9	0.3	-1.9	0.3
h	10	4	5.7	5.7	5.7	0.3	5.7	0.3	5.7	0.3
g	10	5	4.6	4.6	4.6	0.3	4.6	0.3	4.8	0.3
h	10	5	-4.3	-4.3	-4.3	0.3	-4.3	0.3	-4.2	0.3
g	10	6	3.1	3.1	3.1	0.3	3.1	0.3	3.3	0.3
h	10	6	-0.5	-0.4	-0.4	0.3	-0.4	0.3	-0.8	0.3
g	10	7	0.8	0.8	0.8	0.3	0.9	0.3	0.6	0.3
h	10	7	-1.3	-1.3	-1.3	0.3	-1.3	0.3	-1	0.3
g	10	8	2.1	2.1	2.1	0.3	2.1	0.3	2.7	0.3
h	10	8	3.5	3.5	3.5	0.3	3.5	0.3	3.3	0.3
g	10	9	2.8	2.8	2.8	0.3	2.8	0.3	2.8	0.3
h	10	9	-0.5	-0.5	-0.5	0.3	-0.5	0.3	-1.3	0.3
g	10	10	-0.1	-0.1	-0.1	0.3	-0.1	0.3	-0.7	0.3
h	10	10	-6.1	-6.1	-6.1	0.3	-6.1	0.3	-5.6	0.3

Model			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	11	0	2.5	2.5	2.5	0.3	2.4	0.3	2.4	0.3
g	11	1	-1.1	-1.1	-1.1	0.3	-1.1	0.3	-1.2	0.3
h	11	1	0.7	0.7	0.7	0.3	0.6	0.3	0.6	0.3
g	11	2	-1.7	-1.7	-1.7	0.3	-1.7	0.3	-1.8	0.3
h	11	2	1.7	1.7	1.7	0.3	1.7	0.3	1.8	0.3
g	11	3	2.2	2.2	2.2	0.3	2.2	0.3	2.1	0.3
h	11	3	-1.3	-1.3	-1.3	0.3	-1.3	0.3	-1.3	0.3
g	11	4	0	0	0	0.3	0	0.3	-0.1	0.3
h	11	4	-3.1	-3.1	-3.1	0.3	-3.1	0.3	-3.1	0.3
g	11	5	-0.6	-0.6	-0.6	0.3	-0.6	0.3	-0.6	0.3
h	11	5	0.7	0.7	0.7	0.3	0.7	0.3	0.7	0.3
g	11	6	-0.4	-0.4	-0.4	0.3	-0.3	0.3	-0.4	0.3
h	11	6	-0.1	-0.1	-0.1	0.3	-0.1	0.3	0	0.3
g	11	7	1.6	1.6	1.6	0.3	1.6	0.3	1.6	0.3
h	11	7	-2.4	-2.4	-2.4	0.3	-2.4	0.3	-2.5	0.3
g	11	8	1.7	1.7	1.7	0.3	1.7	0.3	1.6	0.3
h	11	8	-0.4	-0.4	-0.4	0.3	-0.4	0.3	-0.3	0.3
g	11	9	-0.7	-0.7	-0.7	0.3	-0.7	0.3	-0.6	0.3
h	11	9	-1.7	-1.7	-1.7	0.3	-1.7	0.3	-1.6	0.3
g	11	10	2	2	2	0.3	2	0.3	2.2	0.3
h	11	10	-1.6	-1.6	-1.6	0.3	-1.5	0.3	-1.7	0.3
g	11	11	3.4	3.4	3.4	0.3	3.4	0.3	3.3	0.3
h	11	11	0.8	0.8	0.8	0.3	0.8	0.3	0.7	0.3
g	12	0	-1.7	-1.7	-1.7	0.3	-1.7	0.3	-1.8	0.3
g	12	1	-0.2	-0.1	-0.1	0.3	-0.1	0.3	-0.1	0.3
h	12	1	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
g	12	2	-0.3	-0.3	-0.3	0.3	-0.3	0.3	-0.4	0.3
h	12	2	0.8	0.8	0.8	0.3	0.8	0.3	0.8	0.3
g	12	3	-0.2	-0.2	-0.2	0.3	-0.2	0.3	-0.1	0.3
h	12	3	2.5	2.5	2.5	0.3	2.6	0.3	2.6	0.3
g	12	4	0.7	0.7	0.7	0.3	0.7	0.3	0.6	0.3
h	12	4	-1.4	-1.4	-1.4	0.3	-1.5	0.3	-1.4	0.3
g	12	5	0.7	0.7	0.7	0.3	0.7	0.3	0.8	0.3
h	12	5	0.4	0.4	0.4	0.3	0.4	0.3	0.5	0.3
g	12	6	-0.5	-0.5	-0.4	0.3	-0.4	0.3	-0.5	0.3
h	12	6	0.3	0.3	0.3	0.3	0.3	0.3	0.2	0.3
g	12	7	-0.2	-0.2	-0.2	0.3	-0.2	0.3	-0.1	0.3
h	12	7	-0.3	-0.3	-0.3	0.3	-0.2	0.3	-0.2	0.3
g	12	8	0.2	0.2	0.2	0.3	0.2	0.3	0.1	0.3
h	12	8	0.1	0.1	0.1	0.3	0.1	0.3	0	0.3
g	12	9	-0.5	-0.5	-0.5	0.3	-0.5	0.3	-0.3	0.3
h	12	9	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.3
g	12	10	0.1	0.1	0.1	0.3	0.1	0.3	0.3	0.3
h	12	10	-1.3	-1.3	-1.3	0.3	-1.3	0.3	-1.5	0.3
g	12	11	0.6	0.6	0.6	0.3	0.6	0.3	0.3	0.3
h	12	11	0.4	0.4	0.4	0.3	0.4	0.3	0.2	0.3
g	12	12	0.1	0.1	0.1	0.3	0.1	0.3	0.1	0.3
h	12	12	0.4	0.4	0.4	0.3	0.4	0.3	0.6	0.3

Model			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	13	0	0	0	0	0.2	0	0.2	-0.1	0.2
g	13	1	-0.6	-0.6	-0.6	0.2	-0.6	0.2	-0.6	0.2
h	13	1	-0.5	-0.5	-0.5	0.2	-0.5	0.2	-0.3	0.2
g	13	2	0.4	0.4	0.4	0.2	0.4	0.2	0.3	0.2
h	13	2	0.3	0.3	0.3	0.2	0.3	0.2	0.4	0.2
g	13	3	-0.8	-0.8	-0.8	0.2	-0.8	0.2	-0.7	0.2
h	13	3	1.5	1.5	1.5	0.2	1.5	0.2	1.7	0.2
g	13	4	0	0	0	0.2	0	0.2	0	0.2
h	13	4	-0.2	-0.2	-0.2	0.2	-0.2	0.2	-0.3	0.2
g	13	5	1.1	1.1	1.1	0.2	1.1	0.2	1.2	0.2
h	13	5	-0.5	-0.5	-0.5	0.2	-0.5	0.2	-0.3	0.2
g	13	6	-0.4	-0.4	-0.4	0.2	-0.4	0.2	-0.4	0.2
h	13	6	-0.1	-0.1	-0.1	0.2	-0.1	0.2	-0.2	0.2
g	13	7	0.4	0.4	0.4	0.2	0.4	0.2	0.4	0.2
h	13	7	0.8	0.8	0.8	0.2	0.8	0.2	1	0.2
g	13	8	-0.5	-0.5	-0.5	0.2	-0.5	0.2	-0.4	0.2
h	13	8	0.1	0.1	0.1	0.2	0	0.2	-0.1	0.2
g	13	9	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
h	13	9	0.8	0.8	0.8	0.2	0.8	0.2	1.1	0.2
g	13	10	-0.1	-0.1	-0.1	0.2	-0.1	0.2	0.3	0.2
h	13	10	0	0.1	0.1	0.2	0	0.2	-0.3	0.2
g	13	11	0.3	0.3	0.3	0.2	0.3	0.2	0	0.2
h	13	11	0	0	0	0.2	0	0.2	-0.3	0.2
g	13	12	0	0	0	0.2	0	0.2	0	0.2
h	13	12	0.1	0.1	0.1	0.2	0.1	0.2	0.4	0.2
g	13	13	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.2
h	13	13	-0.3	-0.3	-0.3	0.2	-0.3	0.2	-0.3	0.2

GSFC(5/89) MODELS: Secular Variation Coefficients

Model:			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	1	0	23	23.1	23	0.26	25.3	0.14	33.1	0.24
g	1	1	11.7	11.5	11.6	0.35	10.8	0.3	-1.9	0.31
h	1	1	-20.5	-20.6	-20.5	0.35	-21.5	0.31	-17.4	0.3
g	2	0	-13.8	-13.8	-13.9	0.24	-15.7	0.13	-14.5	0.23
g	2	1	3.5	3.7	3.6	0.24	3.1	0.14	-1.4	0.24
h	2	1	-14.1	-14.1	-14	0.25	-13.6	0.15	-18.1	0.23
g	2	2	4	4	4.1	0.32	4.6	0.28	18.9	0.28
h	2	2	-22.3	-22.2	-22.1	0.31	-21.9	0.27	-18	0.27
g	3	0	3.3	3.3	3.4	0.22	2	0.13	-4.4	0.21
g	3	1	-5.6	-5.7	-5.6	0.23	-4.8	0.16	-5	0.23
h	3	1	4.7	4.7	4.7	0.23	6.2	0.17	0.7	0.2
g	3	2	-1.2	-1.2	-1.1	0.23	-0.9	0.15	-3.2	0.23
h	3	2	3	2.9	2.8	0.23	3	0.15	6.3	0.22
g	3	3	-1.2	-1.2	-1.3	0.29	-1.3	0.26	-7.5	0.27
h	3	3	-8.9	-8.9	-9	0.29	-9.4	0.26	-14.4	0.26
g	4	0	0.3	0.3	0.3	0.2	0.1	0.12	-1.3	0.19
g	4	1	-1.6	-1.6	-1.5	0.21	-0.8	0.12	2.9	0.2
h	4	1	4	4	4	0.2	3.5	0.13	6.8	0.19
g	4	2	-7.6	-7.6	-7.6	0.22	-7.1	0.15	-10.8	0.21
h	4	2	1.9	2	2	0.21	1.1	0.15	4.3	0.2
g	4	3	-0.9	-0.9	-0.9	0.22	-1.5	0.14	-1.3	0.21
h	4	3	3.2	3.1	3.1	0.22	3	0.15	4.2	0.21
g	4	4	-5.7	-5.6	-5.6	0.28	-5.5	0.25	-3	0.26
h	4	4	-0.1	-0.1	-0.2	0.27	-0.2	0.24	6.6	0.25
g	5	0	0.5	0.5	0.5	0.19	1.3	0.11	5.2	0.19
g	5	1	0.1	0	-0.1	0.19	-0.5	0.12	0.4	0.19
h	5	1	0.4	0.4	0.4	0.19	-0.1	0.13	4.8	0.18
g	5	2	-0.8	-0.8	-0.9	0.21	-1.8	0.13	0.8	0.2
h	5	2	0.7	0.6	0.6	0.19	0.1	0.12	1.1	0.18
g	5	3	-3.6	-3.5	-3.5	0.21	-3.9	0.14	-2.5	0.21
h	5	3	-0.4	-0.4	-0.4	0.21	-0.7	0.15	-1.1	0.2
g	5	4	-0.2	-0.2	-0.2	0.22	-0.6	0.16	4.1	0.21
h	5	4	0.6	0.6	0.7	0.21	0.7	0.14	0.9	0.2
g	5	5	-0.5	-0.6	-0.5	0.26	-0.1	0.23	5.7	0.24
h	5	5	0.6	0.5	0.6	0.27	0.9	0.24	0.5	0.25

Model:			..-1	..-2	..-3		..-4		..
			coef.	coef.	coef.	σ	coef.	σ	coef.
g/h	n	m							
g	6	0	0.5	0.5	0.5	0.18	1	0.11	1.4
g	6	1	0.3	0.4	0.3	0.19	0	0.11	-1.7
h	6	1	-0.2	-0.1	-0.1	0.18	-0.1	0.11	-2.1
g	6	2	1.6	1.7	1.6	0.19	1.4	0.12	4.1
h	6	2	-1.5	-1.4	-1.4	0.18	-1.2	0.12	-2.4
g	6	3	1.6	1.5	1.5	0.19	2.2	0.12	1.8
h	6	3	-1.1	-1.1	-1	0.19	-0.4	0.13	-4.3
g	6	4	-0.5	-0.5	-0.5	0.21	-0.1	0.15	-0.7
h	6	4	-1	-1	-1	0.19	-0.8	0.13	0.5
g	6	5	0.9	1	0.9	0.2	0.1	0.14	0.9
h	6	5	-0.1	0	0.1	0.21	0.7	0.15	-2.4
g	6	6	1.1	1.1	1.2	0.25	1.5	0.22	0.2
h	6	6	0.8	0.8	0.8	0.25	1	0.22	-4.3
g	7	0	1	1	1	0.17	0.2	0.1	-1.7
g	7	1	-0.8	-0.8	-0.8	0.17	-0.6	0.1	-0.8
h	7	1	0.1	0	0.1	0.17	0.2	0.11	-2.6
g	7	2	-0.3	-0.2	-0.1	0.18	0.2	0.11	-0.7
h	7	2	0.2	0.1	0.1	0.16	0.4	0.11	-0.7
g	7	3	0.4	0.4	0.4	0.18	0.5	0.11	-0.5
h	7	3	1	0.9	1	0.17	0.7	0.12	-1.2
g	7	4	0.9	0.9	0.9	0.2	1.1	0.13	-0.8
h	7	4	1	1	1	0.18	0.8	0.12	6.8
g	7	5	0.6	0.6	0.6	0.19	0.8	0.14	1.5
h	7	5	0.6	0.5	0.4	0.2	-0.1	0.14	-4.8
g	7	6	-0.2	-0.1	-0.2	0.2	0.2	0.15	-4
h	7	6	0.7	0.6	0.5	0.2	-0.2	0.14	-1.2
g	7	7	0.7	0.7	0.7	0.25	0	0.22	-1.1
h	7	7	0.3	0.3	0.4	0.24	0.6	0.21	6.8
g	8	0	0.9	0.9	0.9	0.16	0.5	0.1	0.8
g	8	1	-0.2	-0.2	-0.2	0.16	-0.2	0.1	2.2
h	8	1	0.2	0.2	0.2	0.15	0	0.1	3.6
g	8	2	0.1	0.1	0	0.16	0.4	0.1	-1.3
h	8	2	-0.4	-0.4	-0.4	0.16	-0.5	0.1	-0.8
g	8	3	-0.2	-0.2	-0.2	0.16	-0.1	0.1	1
h	8	3	0.3	0.3	0.2	0.15	0.2	0.11	1.3
g	8	4	0.1	0	0.1	0.18	-0.2	0.13	-1
h	8	4	-0.2	-0.3	-0.3	0.16	-0.3	0.11	1.2
g	8	5	0.2	0.2	0.2	0.18	0	0.12	5.6
h	8	5	0.4	0.4	0.4	0.19	0.3	0.13	-0.6
g	8	6	-0.1	-0.1	-0.1	0.19	-0.1	0.14	-1.7
h	8	6	-0.5	-0.4	-0.4	0.19	-0.5	0.14	-0.7
g	8	7	-0.1	-0.2	-0.2	0.19	-0.4	0.14	-0.4
h	8	7	-0.2	-0.2	-0.2	0.19	0.5	0.14	2.3
g	8	8	-1.4	-1.4	-1.4	0.23	-0.8	0.2	2.5
h	8	8	0.7	0.7	0.7	0.24	0.2	0.21	-2

Model:			..-1	..-2	..-3		..-4		..-5	
			coef.	coef.	coef.	σ	coef.	σ	coef.	σ
g/h	n	m								
g	9	0	-0.5	-0.4	-0.4	0.14	0.1	0.09	3.7	0.14
g	9	1	0.1	0.1	0.1	0.15	0	0.09	-1	0.14
h	9	1	0.4	0.4	0.4	0.14	0.2	0.09	0.6	0.13
g	9	2	0.4	0.4	0.3	0.15	0.2	0.09	0.7	0.14
h	9	2	0.3	0.2	0.3	0.15	0.1	0.09	-1.2	0.14
g	9	3	0	0.1	0.1	0.14	-0.1	0.09	0.5	0.14
h	9	3	0.2	0.2	0.2	0.15	0.3	0.1	1.8	0.14
g	9	4	-0.1	-0.1	0	0.15	-0.2	0.11	0.7	0.15
h	9	4	-0.1	0	0	0.15	0	0.09	-3.4	0.14
g	9	5	-0.6	-0.5	-0.6	0.16	-0.3	0.11	-0.9	0.16
h	9	5	-0.5	-0.4	-0.4	0.18	-0.1	0.12	-0.9	0.17
g	9	6	0	0	0	0.18	-0.2	0.12	0.7	0.17
h	9	6	-0.8	-0.8	-0.7	0.17	0	0.12	-1	0.16
g	9	7	-0.1	0	-0.1	0.19	0.6	0.13	-0.2	0.18
h	9	7	0.2	0.2	0.1	0.19	-0.5	0.14	-1.2	0.18
g	9	8	-0.4	-0.3	-0.3	0.19	0.4	0.14	-0.6	0.18
h	9	8	-0.3	-0.3	-0.3	0.19	0.4	0.14	-3.9	0.18
g	9	9	0.2	0.2	0.1	0.23	0	0.19	-1.2	0.21
h	9	9	0.3	0.3	0.3	0.22	0.2	0.2	1.8	0.21
g	10	0	0.1	0.1	0.1	0.12	0	0.08	-1.3	0.11
g	10	1	-0.1	-0.1	-0.1	0.12	-0.1	0.08	-1.7	0.12
h	10	1	0	0	0	0.12	-0.1	0.09	-3.9	0.11
g	10	2	-0.5	-0.5	-0.5	0.12	-0.5	0.09	-0.6	0.11
h	10	2	-0.1	-0.1	-0.1	0.12	-0.2	0.09	1.6	0.12
g	10	3	0.2	0.1	0.1	0.13	0.1	0.09	-1	0.12
h	10	3	0	0	0	0.12	0.1	0.09	-0.2	0.11
g	10	4	0	-0.1	-0.1	0.13	-0.2	0.1	0.1	0.13
h	10	4	0.1	0	0.1	0.12	-0.1	0.09	-0.9	0.11
g	10	5	0	0	0	0.13	-0.1	0.09	-2.4	0.13
h	10	5	0.2	0.1	0.1	0.14	0	0.1	-0.9	0.13
g	10	6	0	0	0	0.15	0	0.11	-2.3	0.13
h	10	6	0.3	0.2	0.2	0.15	-0.1	0.11	3.5	0.14
g	10	7	0.1	0	0.1	0.15	0	0.11	2.5	0.13
h	10	7	-0.2	-0.2	-0.2	0.15	-0.1	0.11	-3.1	0.13
g	10	8	0.3	0.2	0.2	0.16	-0.5	0.12	-6.4	0.14
h	10	8	0	0	0	0.16	-0.3	0.12	2.5	0.14
g	10	9	0.3	0.3	0.3	0.17	-0.1	0.13	0.5	0.14
h	10	9	-0.2	-0.2	-0.1	0.17	0.1	0.13	8.1	0.15
g	10	10	-0.2	-0.2	-0.1	0.22	0.2	0.18	6.2	0.2
h	10	10	-0.7	-0.6	-0.7	0.23	-0.3	0.2	-5.6	0.2

GSFC(4/89) MODELS: Main Field Coefficients

		Model	..-1		..-2		..-3	..-4	
g/h	n	m	coef.	σ	coef.	σ	coef.	coef.	σ
g	1	0	-29772.9	6.3	-29747.7	15.9	-29753.6	-29738.9	29.1
g	1	1	-1876.3	6.6	-1923.3	27.2	-1917.5	-1891.7	36.6
h	1	1	5409.4	6.9	5369.5	22.5	5365	5403	31.6
g	2	0	-2139.7	5.8	-2133.9	16.8	-2132.5	-2127.6	27.9
g	2	1	3045.2	5.4	3059.7	14.4	3051.5	3097.7	29.4
h	2	1	-2280.3	6.4	-2258.1	14.3	-2264.1	-2254.7	25.2
g	2	2	1710.2	6.6	1743.7	26.7	1747.1	1692	32
h	2	2	-355.8	5.8	-329.9	23.3	-326.6	-305.7	33.2
g	3	0	1312	5.6	1319	12.9	1319.5	1310.4	22.6
g	3	1	-2214.2	5	-2212.2	18.1	-2212.1	-2237.8	26.5
h	3	1	-264.8	7	-268.6	14.9	-261.3	-308.6	25.5
g	3	2	1245.4	6.3	1251	14	1246.2	1256.3	23.9
h	3	2	301.5	6.1	290.8	13.9	292.8	278	27.8
g	3	3	820.2	6.3	751.5	26.1	757.7	808.8	30.4
h	3	3	-354.7	6.1	-365.9	21.9	-360.4	-340.6	31.3
g	4	0	951.8	5.1	954.7	12.2	960.7	981.9	20
g	4	1	777.8	4	768.3	13	770.9	760.6	21
h	4	1	241.7	6.1	254.4	11.6	258.8	264.8	24
g	4	2	338.7	5.6	297.9	15.2	299.7	319.3	21.5
h	4	2	-259.4	5.6	-238.2	14.3	-239.1	-266.4	26.1
g	4	3	-417.6	5.5	-416.2	13	-419.1	-443.8	21.4
h	4	3	81.5	5	83.3	12.3	83.9	52.6	25.5
g	4	4	145.6	4.7	189.6	25.9	194	101.9	27
h	4	4	-290.2	5.3	-266.5	21.5	-269.8	-286.7	26.6
g	5	0	-221.8	5.4	-217	11.1	-226.5	-232.9	19.5
g	5	1	353	3.8	333.5	10.9	331.5	345.2	18.1
h	5	1	31.6	4.9	47	11.3	35.6	23.8	20.2
g	5	2	236.4	4.2	234.3	11.1	237.3	223.6	17.1
h	5	2	161.2	4.8	155.3	11.6	155.9	149.3	23.9
g	5	3	-131.9	5.9	-89.5	14.1	-89.7	-87.6	19.9
h	5	3	-153.9	4.7	-162.5	11.6	-165.7	-117.9	23.7
g	5	4	-165.8	4.1	-157.7	11.4	-162.4	-162.6	22.5
h	5	4	-77.3	5.4	-57.5	12.7	-53.5	-69.8	21.3
g	5	5	-39.2	5	-92.6	22.4	-92.9	-55.8	25
h	5	5	104.8	4.3	75.7	21.3	70.3	86.7	24.9

g/h	n	m	Model ..-1 coef.	σ	..-2 coef.	σ	..-3 coef.	..-4 coef.	σ
g	6	0	62.9	3.6	59.6	10	62.3	30.9	17.2
g	6	1	59.6	3.2	73.6	9.8	71.3	67.7	15.7
h	6	1	-6.9	4.5	-20.1	9.7	-11.9	4	16
g	6	2	47.7	3.2	58.9	9.8	52.5	76.6	15.1
h	6	2	83	3.8	80.7	10.6	81.8	96.8	20.1
g	6	3	-164	4.6	-181.7	10.5	-179.8	-195.5	18.1
h	6	3	67.8	3.4	80.8	9.8	80.6	41.2	19.6
g	6	4	5.1	4.5	-3.9	12.6	-4.9	20.6	23.5
h	6	4	-31.2	5.3	-48.5	11.8	-47.9	-26.3	17.8
g	6	5	9.3	4.1	10.8	10.6	8.6	21.7	20.5
h	6	5	0.6	3.8	-14.2	11	-9.8	-29.4	20.6
g	6	6	-84.1	4.1	-68.2	19.6	-66.5	-73.4	23.5
h	6	6	20.4	4.7	47.2	20	47.7	-14.1	24.8
g	7	0	77.9	2.9	77.1	8.2	83.1	103.3	14.4
g	7	1	-60.6	2.6	-67.8	9.3	-64.6	-69.4	12.9
h	7	1	-78.8	3.1	-77.9	8.9	-81.9	-65.5	14.1
g	7	2	17.2	2.9	10.4	8.4	16.3	1.9	13.1
h	7	2	-24.2	3.3	-15.6	9.1	-13.5	-37	16.2
g	7	3	30.8	3.3	34.4	9.9	33.9	31.9	16.4
h	7	3	10.6	2.6	-1.7	8.8	4.7	-17.3	16.6
g	7	4	1.7	3.6	-3.7	9.3	-2.2	-0.7	19.9
h	7	4	3.7	3.8	12.1	8.9	9.8	1.4	14.6
g	7	5	19.3	4.3	15.4	10.6	16.3	-14.2	18
h	7	5	7.7	4.4	20.7	10.9	19.8	34.7	19.8
g	7	6	12.5	3.6	15.7	10	12.6	8.9	19
h	7	6	-20.1	3.6	-21.9	9.4	-19.2	-9.4	18.6
g	7	7	-3.7	4.2	-29.1	18.5	-27.4	-5.5	23.1
h	7	7	-4.5	4.5	-13.6	18.2	-18.6	-12.5	23.6
g	8	0	27	2.1	28.4	6.2	23.6	8.9	11.3
g	8	1	8.5	1.9	-3.4	7.5	-3	1.6	11
h	8	1	6.9	2.1	14.1	8.1	13.8	13.6	11.4
g	8	2	-4.3	1.9	-8.1	6.6	-10.9	-15.9	10.2
h	8	2	-25.7	2.4	-17.6	7.6	-20.8	-15.5	12.2
g	8	3	-14.4	2.5	-17.8	7.9	-17.8	-9.9	12.2
h	8	3	-3.3	2	9.3	7.5	5.6	37.1	12.3
g	8	4	-7.7	2.5	-9.4	8.7	-4.9	-24.3	14.4
h	8	4	-19.7	2.2	-16.5	7.4	-14.8	-22.9	11.5
g	8	5	-12.3	2.7	-1.7	8	-1.7	20	13.4
h	8	5	10.5	2.8	24	7.9	20.5	19.2	13.6
g	8	6	1.1	2.9	-7.4	9.9	-7.1	-1.1	14.2
h	8	6	9.3	2.9	-1.9	9.8	-4.9	22.2	14.7
g	8	7	-4.1	2.6	-0.4	8.8	-3	10.1	15.1
h	8	7	-8.6	2.7	-23.7	8.8	-19.8	-22.7	15.6
g	8	8	-10.4	4.1	11.6	16.3	9.6	16.6	20.6
h	8	8	-11.2	3.4	0.7	15.9	-6.9	13.4	21

Model			..-1		..-2		..-3	..-4	
			coef.	σ	coef.	σ	coef.	coef.	σ
g/h	n	m							
g	9	0	2.7	0.8	3	6.4	3.5	10	2.7
g	9	1	7.5	0.9	5	6.2	3.3	11.9	2.8
h	9	1	-24.1	0.9	-17.5	6.1	-16	-22.4	2.4
g	9	2	0	0.9	-5.3	6.6	-5.7	1.3	2.5
h	9	2	16	1	12.8	7.7	13.1	8.3	2.7
g	9	3	-8.4	0.9	-8.6	6.5	-9	-16.1	2.6
h	9	3	13.3	0.9	7.6	6.3	7.9	10.4	2.7
g	9	4	0.3	1	14.3	7.3	12.5	8.6	2.8
h	9	4	-2.7	0.9	-8.6	6.6	-9.2	-10	2.7
g	9	5	0.5	1	-5.7	6.8	-6	-7.2	3
h	9	5	-8.6	1.2	-16.7	7.5	-15.4	-8.5	3
g	9	6	-3.1	1.1	-3.1	7.2	-3.8	-2.2	3.2
h	9	6	17.9	1.1	2.9	6.7	2.9	16.6	3
g	9	7	7.2	1.4	20.7	8.6	20.9	20.5	3.6
h	9	7	4.8	1.2	11.2	7.7	9.1	-4.1	3.3
g	9	8	7.6	1.2	6.7	7	8.1	0.1	3.5
h	9	8	-7.7	1.1	-5.8	7.1	-1.3	-6.7	3.2
g	9	9	-14.2	1.6	-21.8	12.1	-25.2	-21.7	4.9
h	9	9	2.4	1.6	1.4	12	-2.6	6.7	5
g	10	0	-4.1	0.6	-9	5.3	-8.5	-9.2	2.4
g	10	1	-4.9	0.6	-1.8	5.9	-1.9	-3.8	2.6
h	10	1	4.5	0.6	-4.6	5.4	-5.2	6.2	2.2
g	10	2	1.6	0.6	4.4	5.4	4.2	3.5	2.3
h	10	2	1.5	0.7	-7	5.7	-5.3	-2.4	2.4
g	10	3	-7.1	0.7	-3	6.3	-2.6	-4.7	2.4
h	10	3	3.4	0.6	5.7	6	5.8	5.1	2.5
g	10	4	4.1	0.7	-2	6.1	-2.5	7.2	2.6
h	10	4	-0.8	0.6	5.1	5.4	4.3	3.6	2.5
g	10	5	4.9	0.7	-1.6	6.2	-1.6	4.6	2.7
h	10	5	-0.6	0.7	-8.8	5.6	-8	-5.5	2.5
g	10	6	1	0.8	9	6	10.1	-3.1	2.8
h	10	6	-6.5	0.8	1.5	5.6	1	-2.9	2.8
g	10	7	6.2	0.8	7.4	6.2	8.1	-0.5	2.9
h	10	7	-5.4	0.8	3.6	5.9	4.1	0.5	2.8
g	10	8	0.8	0.9	-9.4	6.9	-11.1	2.5	3.2
h	10	8	5	0.9	6	7.5	5.3	4.6	3.2
g	10	9	-2	1	1.2	6.9	4.1	0.4	3.3
h	10	9	0	0.9	-2.5	6.4	-2.9	-4.8	3.1
g	10	10	10.7	1.3	6.4	11.1	5.5	4.9	4.9
h	10	10	-2.9	1.4	-3.1	10.4	-1.5	-0.4	5

GSFC(4/89) MODELS: Secular Variation Coefficients

Model			..-1		..-2		..-3		..-4	
			coef	σ	coef	σ	coef	σ	coef	σ
g/h	n	m								
g	1	0	20.2	1.13	22	1.3	20.2		27	6.41
g	1	1	10.5	1.2	10	1.29	10		13.5	8.11
h	1	1	-17.4	1.28	-19.6	1.42	-21.3		-15.6	7.02
g	2	0	-12.6	1.22	-14.1	1.43	-13.3		-11.3	6.17
g	2	1	1	1.11	3.5	1.23	1.7		11.4	6.61
h	2	1	-19.2	1.36	-16.9	1.64	-18		-13.8	5.55
g	2	2	3.9	1.39	2.2	1.46	3.5		-1.5	7.21
h	2	2	-16.7	1.2	-16.8	1.28	-15.6		-9.7	7.35
g	3	0	2.6	1.14	4.2	1.27	4.1		0.8	5.07
g	3	1	-3.7	0.99	-6.3	1.09	-6.2		-9.3	5.95
h	3	1	7.6	1.45	6.9	1.74	8.3		-0.2	5.58
g	3	2	-3	1.28	-1	1.47	-1		2.4	5.37
h	3	2	5	1.19	2.7	1.36	2.7		-2.4	6.17
g	3	3	-1.9	1.29	-3.1	1.35	-2.5		0.6	6.91
h	3	3	-11.2	1.21	-10.4	1.26	-8.6		-6.2	6.95
g	4	0	3.4	1.07	0.8	1.29	1.6		8.4	4.4
g	4	1	-0.7	0.79	-0.1	0.87	0.4		-5.3	4.76
h	4	1	4.1	1.31	2.5	1.52	4.1		5	5.28
g	4	2	-4.6	1.16	-6.8	1.44	-7.1		-7.4	4.81
h	4	2	-1.4	1.18	1.6	1.39	1.8		-2.5	5.7
g	4	3	3	1.13	0.5	1.32	-0.3		-4.3	4.81
h	4	3	4.8	1.03	3.9	1.18	4		-3.3	5.65
g	4	4	-5.9	0.94	-5.8	0.98	-5.1		-14.5	6.01
h	4	4	0	1.1	0.1	1.15	-0.8		-1.2	6.05
g	5	0	-1.9	1.14	-0.3	1.36	-1.6		-3.9	4.34
g	5	1	-1.3	0.79	-0.5	0.86	-0.8		1.9	4.03
h	5	1	-3.9	1.02	-0.4	1.21	-3.1		-4.8	4.38
g	5	2	-1.8	0.85	-1.8	1.09	-1.6		-4.8	3.9
h	5	2	2.6	1.01	0.7	1.18	1.2		0.9	5.27
g	5	3	-8.2	1.23	-4.5	1.47	-4.4		-2.1	4.41
h	5	3	-1.3	0.97	-0.7	1.16	-1.3		8	5.2
g	5	4	0	0.84	-0.2	0.93	-0.3		0.6	5.01
h	5	4	-1.2	1.12	0.7	1.25	1.3		0.8	4.73
g	5	5	1.1	1.01	1	1.06	0.2		1.1	5.67
h	5	5	0.5	0.86	0.1	0.9	-0.3		0.2	5.57

g/h	n	m	..-1 coef	..-1 σ	..-2 coef	..-2 σ	..-3 coef	..-3 σ	..-4 coef	..-4 σ
g	6	0	1.1	0.75	1.4	0.82	2		-4.7	3.83
g	6	1	0.3	0.66	-0.3	0.7	-0.4		1.1	3.57
h	6	1	2.8	0.92	0.3	1.13	1.6		4.6	3.5
g	6	2	0.1	0.65	1.9	0.74	0.8		4.3	3.36
h	6	2	-1.3	0.79	-1.2	0.89	-1		1.3	4.41
g	6	3	4.2	0.96	1.9	1.16	2.5		-0.9	4.1
h	6	3	0.1	0.69	-0.5	0.83	-0.5		-6.5	4.38
g	6	4	-0.8	0.93	-0.6	1.04	-0.4		1.7	5.24
h	6	4	3.3	1.1	0.1	1.27	0.6		3.7	3.94
g	6	5	-1	0.86	0	0.92	-1		0	4.54
h	6	5	0.5	0.8	0.1	0.84	0.8		-4.8	4.63
g	6	6	2.8	0.86	1.6	0.89	2.3		5.2	5.32
h	6	6	0	0.97	1	1.02	1.5		-6.4	5.63
g	7	0	1.9	0.56	0.7	0.63	2		6	3.21
g	7	1	0.3	0.52	-0.3	0.55	-0.1		-0.8	2.92
h	7	1	-0.6	0.61	0.5	0.73	0.2		1	3.11
g	7	2	1.7	0.57	0	0.7	1.1		-1.1	2.97
h	7	2	0.1	0.67	0.5	0.72	0.6		-2.6	3.53
g	7	3	0.6	0.68	0.7	0.78	1		2.9	3.63
h	7	3	1.2	0.54	0.7	0.62	2.1		-3.[illegible]	3.7
g	7	4	1.6	0.74	1.4	0.82	1.3		1	4.5
h	7	4	-3.3	0.79	-0.8	0.94	-1.2		-2.[illegible]	3.31
g	7	5	3.1	0.87	1.2	0.97	1.3		-4.2	3.95
h	7	5	-0.4	0.9	0	0.97	0		2.9	4.47
g	7	6	-0.3	0.74	-0.2	0.8	-0.7		-2.1	4.22
h	7	6	1.8	0.75	0.3	0.8	0.4		4.1	4.17
g	7	7	-0.2	0.82	0.4	0.86	0.1		1.9	5.1
h	7	7	-0.5	0.96	0.2	1.02	-0.4		-3.6	5.37
g	8	0	-0.1	0.38	0.5	0.44	-0.3		-2.1	2.54
g	8	1	-0.2	0.38	-0.2	0.4	-0.4		0.7	2.48
h	8	1	0.2	0.39	0.6	0.43	0.3		1.2	2.51
g	8	2	-0.6	0.36	-0.2	0.42	-0.8		-2.8	2.32
h	8	2	-0.8	0.45	-0.4	0.48	-0.5		-0.2	2.71
g	8	3	-0.1	0.48	-0.1	0.54	-0.2		-0.2	2.7
h	8	3	0.1	0.38	0.5	0.41	0		5.9	2.7
g	8	4	-0.1	0.51	-0.4	0.55	0.4		-1.2	3.22
h	8	4	1	0.44	0.6	0.5	0.5		0.6	2.61
g	8	5	-1.9	0.52	-0.4	0.59	-0.2		3.1	3.02
h	8	5	-0.3	0.55	0.3	0.61	-0.2		0.1	3.07
g	8	6	-0.4	0.55	-0.1	0.59	0		0.3	3.13
h	8	6	-1.5	0.53	-1	0.56	-2.2		2	3.25
g	8	7	-0.2	0.51	-0.2	0.54	-0.7		1.3	3.32
h	8	7	0.3	0.55	-0.3	0.59	0.7		-2.4	3.45
g	8	8	-2.5	0.84	-1.4	0.89	-1.6		0.9	4.6
g	8	8	0.9	0.69	0.3	0.75	-1.2		4	4.64

Appendix B. **Listing of External Field Static Terms, Dst Multiplier Terms, and Their Estimated Uncertainties for GSFC(5/89-X) Series**

GSFC(5/89-1) **Model**

g/q/s	n	m	Type	Coefficient	Standard Deviation
q	1	0	static	18.72960 nT	0.08658 nT
q	1	1	static	-1.06290 nT	0.09959 nT
s	1	1	static	-3.10297 nT	0.10019 nT
g	1	0	Dst	-0.16907	0.00697
q	1	0	Dst	-0.63175	0.00998
q	1	1	Dst	-0.06827	0.01046
s	1	1	Dst	0.16972	0.01116

GSFC(5/89-2) **Model**

g/q/s	n	m	Type	Coefficient	Standard Deviation
q	1	0	static	18.72725 nT	0.08657 nT
q	1	1	static	-1.06443 nT	0.09958 nT
s	1	1	static	-3.10227 nT	0.10018 nT
g	1	0	Dst	-0.16912	0.00696
q	1	0	Dst	-0.63178	0.00998
q	1	1	Dst	-0.06886	0.01045
s	1	1	Dst	0.16939	0.01116

GSFC(5/89-3) **Model**

g/q/s	n	m	Type	Coefficient	Standard Deviation
q	1	0	static	18.72771 nT	0.08657 nT
q	1	1	static	-1.06410 nT	0.09958 nT
s	1	1	static	-3.10274 nT	0.10017 nT
g	1	0	Dst	-0.16907	0.00696
q	1	0	Dst	-0.63178	0.00997
q	1	1	Dst	-0.06830	0.01045
s	1	1	Dst	0.16933	0.01115

GSFC(5/89-4) **Model**

g/q/s	n	m	Type	Coefficient	Standard Deviation
q	1	0	static	18.74793 nT	0.08638 nT
q	1	1	static	-1.02312 nT	0.09946 nT
s	1	1	static	-3.14808 nT	0.09997 nT
g	1	0	Dst	-0.16634	0.00665
q	1	0	Dst	-0.65700	0.00971
q	1	1	Dst	-0.05128	0.01020
s	1	1	Dst	0.16074	0.01089

Appendix C. Listing of Observatory Vector Biases and Their Estimated Uncertainties for GSFC(4/89-X) and GSFC(5/89-X) Series

ITERATION # 2 ARC PARAMETER SOLUTIONS PLUS STATISTICS:

ARC SET NUMBER 1:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ABISKO VI	BIAS	X	28.70085	0.2880513E-09	28.70085	15.07018
ABISKO VI	BIAS	Y	56.59162	-.2924346E-09	56.59162	15.07913
ABISKO VI	BIAS	Z	30.30963	0.1012561E-08	30.30963	19.81458

ARC SET NUMBER 2:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ADDIS ABABA II	BIAS	X	545.6252	0.9782939E-10	545.6252	15.05471
ADDIS ABABA II	BIAS	Y	7.563843	-.1092694E-08	7.563843	15.53319
ADDIS ABABA II	BIAS	Z	120.0750	0.1380809E-08	120.0750	20.75240

ARC SET NUMBER 3:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALERT	BIAS	X	-7.791839	0.3867753E-09	-7.791839	14.19811
ALERT	BIAS	Y	29.48570	0.1158988E-08	29.48570	14.10775
ALERT	BIAS	Z	-189.4366	0.8571376E-09	-189.4366	19.41671

ARC SET NUMBER 4:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALIBAG III	BIAS	X	-205.2014	0.2390358E-09	-205.2014	13.73356
ALIBAG III	BIAS	Y	453.1540	0.6394447E-10	453.1540	14.07683
ALIBAG III	BIAS	Z	605.9721	-.3087876E-09	605.9721	19.04222

ARC SET NUMBER 5:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMA ATA	BIAS	X	163.4004	0.1831347E-09	163.4004	13.78651
ALMA ATA	BIAS	Y	23.19433	-.1270899E-10	23.19433	13.81974
ALMA ATA	BIAS	Z	-176.2447	0.2656812E-09	-176.2447	19.15368

ARC SET NUMBER 6:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMERIA	BIAS	X	-12.02933	0.4285431E-10	-12.02933	13.86336
ALMERIA	BIAS	Y	12.25847	0.3858143E-09	12.25847	13.80670
ALMERIA	BIAS	Z	10.32590	0.1049100E-08	10.32590	19.01007

ARC SET NUMBER 7:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AMATSIA	BIAS	X	110.7633	-.5952534E-09	110.7633	14.14013
AMATSIA	BIAS	Y	34.36187	-.1029268E-08	34.36187	14.31545
AMATSIA	BIAS	Z	279.7251	0.9543816E-10	279.7251	19.57227

ARC SET NUMBER 8:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ANNAMALAINAG II	BIAS	X	152.2672	-.2615674E-09	152.2672	14.55264

ANNAMALAINAG II	BIAS	Y	-105.4145	-.1226503E-10	-105.4145	14.62171
ANNAMALAINAG II	BIAS	Z	-48.58485	0.1097512E-09	-48.58485	19.32712

ARC SET NUMBER 9:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
APIA IV	BIAS	X	-25.57453	0.7104870E-09	-25.57453	15.77816
APIA IV	BIAS	Y	200.7853	-.8710130E-09	200.7853	15.85138
APIA IV	BIAS	Z	-883.4520	0.7631332E-09	-883.4520	20.69574

ARC SET NUMBER 10:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AQUILA	BIAS	X	9.833823	-.4819510E-09	9.833823	13.45643
AQUILA	BIAS	Y	39.67112	-.2113114E-09	39.67112	13.30917
AQUILA	BIAS	Z	-10.85560	0.7032136E-09	-10.85560	18.51893

ARC SET NUMBER 11:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARCTOWSKI	BIAS	X	-147.9145	0.7747406E-09	-147.9145	15.09201
ARCTOWSKI	BIAS	Y	316.4266	0.1085553E-08	316.4266	15.21505
ARCTOWSKI	BIAS	Z	681.5116	-.4895349E-09	681.5116	20.18588

ARC SET NUMBER 12:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARGENTINE ISLND	BIAS	X	87.67947	0.4869986E-09	87.67947	15.48448
ARGENTINE ISLND	BIAS	Y	-75.64151	0.1119630E-08	-75.64151	15.47994
ARGENTINE ISLND	BIAS	Z	483.8415	-.1238893E-08	483.8415	20.37532

ARC SET NUMBER 13:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARTI	BIAS	X	117.3346	-.2328952E-09	117.3346	13.69804
ARTI	BIAS	Y	-263.3686	-.5679229E-09	-263.3686	13.67518
ARTI	BIAS	Z	441.2251	-.3084448E-09	441.2251	18.99692

ARC SET NUMBER 14:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BAKER LAKE VII	BIAS	X	170.8264	0.1199012E-10	170.8264	13.53321
BAKER LAKE VII	BIAS	Y	-34.12753	-.4197819E-09	-34.12753	13.59549
BAKER LAKE VII	BIAS	Z	-77.35463	-.1902542E-09	-77.35463	18.98814

ARC SET NUMBER 15:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BANGUI IV	BIAS	X	-131.3251	0.1376877E-08	-131.3251	14.76487
BANGUI IV	BIAS	Y	-30.37349	0.1441855E-09	-30.37349	29.35360
BANGUI IV	BIAS	Z	210.6118	0.8181539E-09	210.6118	20.40666

ARC SET NUMBER 16:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BARROW IV	BIAS	X	18.39045	0.2010352E-10	18.39045	15.27723
BARROW IV	BIAS	Y	-56.57749	0.5308878E-10	-56.57749	13.97063
BARROW IV	BIAS	Z	-43.73315	-.1939571E-09	-43.73315	19.36787

ARC SET NUMBER 17:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEIJING	BIAS	X	627.0194	-.2553614E-09	627.0194	13.76695
BEIJING	BIAS	Y	-227.7005	-.6212150E-09	-227.7005	13.76604
BEIJING	BIAS	Z	437.8199	0.6655602E-09	437.8199	19.10738

ARC SET NUMBER 18:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BELSK	BIAS	X	118.5735	0.4965001E-09	118.5735	13.17519
BELSK	BIAS	Y	137.2826	-.3323036E-09	137.2826	13.16741
BELSK	BIAS	Z	303.7825	0.4433290E-09	303.7825	18.38673

ARC SET NUMBER 19:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEREZNAYKI III	BIAS	X	-394.8822	-.4427367E-09	-394.8822	39.10749
BEREZNAYKI III	BIAS	Y	-271.1965	-.1917298E-09	-271.1965	39.10903
BEREZNAYKI III	BIAS	Z	247.0340	0.2400078E-09	247.0340	41.45336

ARC SET NUMBER 20:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BJORNOYA II	BIAS	X	-97.86322	0.1003699E-09	-97.86322	13.72154
BJORNOYA II	BIAS	Y	48.36132	-.7385406E-09	48.36132	13.78089
BJORNOYA II	BIAS	Z	26.92443	0.2265871E-08	26.92443	19.06988

ARC SET NUMBER 21:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOROK	BIAS	X	-16.27682	0.3172318E-09	-16.27682	13.57927
BOROK	BIAS	Y	-68.48801	-.6517468E-09	-68.48801	13.56395
BOROK	BIAS	Z	-443.5158	0.5845308E-09	-443.5158	18.77136

ARC SET NUMBER 22:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOULDER	BIAS	X	3.949930	-.1314867E-09	3.949930	13.41975
BOULDER	BIAS	Y	49.56851	-.2133252E-09	49.56851	13.52566
BOULDER	BIAS	Z	-168.6823	0.8186530E-09	-168.6823	18.95846

ARC SET NUMBER 23:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE	BIAS	X	78.78087	0.2959672E-09	78.78087	17.57362
BRORFELDE	BIAS	Y	-102.0209	-.6758620E-10	-102.0209	17.57473
BRORFELDE	BIAS	Z	-207.3845	0.7554074E-09	-207.3845	21.72613

ARC SET NUMBER 24:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE II	BIAS	X	72.95376	0.9074789E-09	72.95376	17.81380
BRORFELDE II	BIAS	Y	-101.0965	-.2013956E-09	-101.0965	17.81580
BRORFELDE II	BIAS	Z	-189.3275	0.9079780E-09	-189.3275	22.06223

ARC SET NUMBER 25:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BUDKOV	BIAS	X	-29.94593	0.2428701E-09	-29.94593	13.86311
BUDKOV	BIAS	Y	-13.49745	-.1760491E-09	-13.49745	13.84071

BUDKOV	BIAS	Z	-42.24803	0.7438047E-09	-42.24803	18.83988

ARC SET NUMBER 26:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAMBRIDGE BAY	BIAS	X	107.4225	0.1093200E-09	107.4225	13.48540
CAMBRIDGE BAY	BIAS	Y	-89.49170	-.2396145E-09	-89.49170	13.53546
CAMBRIDGE BAY	BIAS	Z	131.7632	-.2555748E-09	131.7632	22.69444

ARC SET NUMBER 27:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANARIAS	BIAS	X	-423.4097	0.9383785E-09	-423.4097	15.14329
CANARIAS	BIAS	Y	105.0160	0.1192716E-08	105.0160	15.80674
CANARIAS	BIAS	Z	-1032.946	0.2403886E-09	-1032.946	20.58992

ARC SET NUMBER 28:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANBERRA	BIAS	X	9.423336	-.4664702E-09	9.423336	14.80227
CANBERRA	BIAS	Y	47.25833	0.4935670E-09	47.25833	15.23713
CANBERRA	BIAS	Z	90.22569	0.3832902E-09	90.22569	20.43738

ARC SET NUMBER 29:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAPE WELLEN III	BIAS	X	-68.96686	-.6578497E-10	-68.96686	14.23588
CAPE WELLEN III	BIAS	Y	66.00836	-.8078461E-10	66.00836	13.77633
CAPE WELLEN III	BIAS	Z	-88.77826	-.1843885E-09	-88.77826	19.41049

ARC SET NUMBER 30:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CASEY	BIAS	X	779.6488	-.5124515E-09	779.6488	75.88501
CASEY	BIAS	Y	-341.2821	0.1400897E-08	-341.2821	75.79883
CASEY	BIAS	Z	-810.2531	0.3463199E-10	-810.2531	77.02135

ARC SET NUMBER 31:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHA PA II	BIAS	X	-494.8760	0.7025886E-09	-494.8760	18.23534
CHA PA II	BIAS	Y	-72.26669	0.7153677E-09	-72.26669	17.93292
CHA PA II	BIAS	Z	-320.8961	-.7987956E-09	-320.8961	22.54913

ARC SET NUMBER 32:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHAMBON FORETII	BIAS	X	-63.30153	-.1469323E-09	-63.30153	13.27229
CHAMBON FORETII	BIAS	Y	-20.01812	0.7607599E-10	-20.01812	13.25752
CHAMBON FORETII	BIAS	Z	92.22249	0.7181502E-09	92.22249	18.47013

ARC SET NUMBER 33:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHANGCHUN	BIAS	X	-99.86189	-.4032442E-09	-99.86189	14.61477
CHANGCHUN	BIAS	Y	19.84550	-.3837448E-09	19.84550	14.60275
CHANGCHUN	BIAS	Z	168.3698	-.3182373E-09	168.3698	19.69057

ARC SET NUMBER 34:

CHELYUSKIN IV	BIAS	X	-14.05185	0.1183856E-08	-14.05185	15.23749
CHELYUSKIN IV	BIAS	Y	-111.1861	-.7039261E-09	-111.1861	15.21191
CHELYUSKIN IV	BIAS	Z	-77.24561	0.1438976E-09	-77.24561	20.37935

ARC SET NUMBER 35:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHICHIJIMA	BIAS	X	-307.0186	0.1466698E-09	-307.0186	15.02990
CHICHIJIMA	BIAS	Y	-37.24409	0.9640616E-10	-37.24409	15.11711
CHICHIJIMA	BIAS	Z	231.3212	0.3515500E-09	231.3212	19.71793

ARC SET NUMBER 36:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COIMBRA	BIAS	X	24.71165	-.7022297E-10	24.71165	13.78840
COIMBRA	BIAS	Y	-13.95547	0.4509197E-09	-13.95547	13.94127
COIMBRA	BIAS	Z	-2.865912	0.6872072E-09	-2.865912	19.01618

ARC SET NUMBER 37:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COLLEGE III	BIAS	X	-8.873271	-.5266272E-10	-8.873271	13.69510
COLLEGE III	BIAS	Y	-48.72260	0.1020045E-09	-48.72260	13.47041
COLLEGE III	BIAS	Z	-92.84461	-.3361756E-09	-92.84461	18.99300

ARC SET NUMBER 38:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DAVIS	BIAS	X	-251.6269	-.8900617E-09	-251.6269	15.24775
DAVIS	BIAS	Y	209.5221	0.2603000E-09	209.5221	15.12711
DAVIS	BIAS	Z	156.3073	-.2226626E-[illegible]	156.3073	20.51553

ARC SET NUMBER 39:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DEL RIO	BIAS	X	304.5381	0.1448269E-08	304.5381	18.02423
DEL RIO	BIAS	Y	101.6559	-.1497753E-08	101.6559	17.68663
DEL RIO	BIAS	Z	-423.0998	0.8093951E-09	-423.0998	22.83031

ARC SET NUMBER 40:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DIKSON V	BIAS	X	-74.74361	0.1000284E-08	-74.74361	13.87860
DIKSON V	BIAS	Y	-137.3173	-.1009874E-08	-137.3173	13.82350
DIKSON V	BIAS	Z	-236.2480	-.5424471E-09	-236.2480	19.24684

ARC SET NUMBER 41:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOMBAS III	BIAS	X	-69.76974	0.7872262E-09	-69.76974	13.52963
DOMBAS III	BIAS	Y	-82.27425	-.4689598E-10	-82.27425	13.54663
DOMBAS III	BIAS	Z	-252.4977	0.1484780E-08	-252.4977	18.73820

ARC SET NUMBER 42:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOURBES	BIAS	X	18.71238	0.6346502E-10	18.71238	13.48585
DOURBES	BIAS	Y	-17.17425	0.3612504E-10	-17.17425	13.47766
DOURBES	BIAS	Z	67.67785	0.5488388E-09	67.67785	18.59603

ARG SET NUMBER 43:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUMONT DURVILLE	BIAS	X	-139.7096	-.5480917E-09	-139.7096	14.70426
DUMONT DURVILLE	BIAS	Y	-424.0316	0.1376761E-08	-424.0316	14.62287
DUMONT DURVILLE	BIAS	Z	-2838.221	0.2608569E-08	-2838.221	20.07151

ARC SET NUMBER 44:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUSHETI II	BIAS	X	-205.0261	0.4466511E-09	-205.0261	14.05389
DUSHETI II	BIAS	Y	8.505214	-.2304265E-09	8.505214	13.93540
DUSHETI II	BIAS	Z	-113.1116	-.2161389E-10	-113.1116	19.08962

ARC SET NUMBER 45:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DYMER	BIAS	X	-9.309857	0.8737930E-10	-9.309857	13.85287
DYMER	BIAS	Y	84.12590	-.2752223E-09	84.12590	13.83885
DYMER	BIAS	Z	107.6394	-.1096079E-09	107.6394	18.85370

ARC SET NUMBER 46:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ESKDALEMUIR	BIAS	X	18.82863	0.5165309E-09	18.82863	13.55061
ESKDALEMUIR	BIAS	Y	-49.65439	0.3426461E-09	-49.65439	13.58968
ESKDALEMUIR	BIAS	Z	-64.87805	0.4548395E-09	-64.87805	18.71981

ARC SET NUMBER 47:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
EYREWELL	BIAS	X	-17.25419	-.8513542E-09	-17.25419	14.97164
EYREWELL	BIAS	Y	-41.32929	-.4577168E-09	-41.32929	15.00667
EYREWELL	BIAS	Z	62.42214	-.1035969E-08	62.42214	20.24871

ARC SET NUMBER 48:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FORT CHURCHI II	BIAS	X	-108.6911	-.1269731E-09	-108.6911	13.60292
FORT CHURCHI II	BIAS	Y	40.45125	-.3106627E-09	40.45125	13.61756
FORT CHURCHI II	BIAS	Z	-256.1348	-.1221137E-09	-256.1348	19.06951

ARC SET NUMBER 49:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FREDERICKSBURG	BIAS	X	64.00292	0.1254396E-08	64.00292	14.16346
FREDERICKSBURG	BIAS	Y	-57.34580	0.5962262E-09	-57.34580	14.22658
FREDERICKSBURG	BIAS	Z	129.3082	0.7327871E-10	129.3082	19.65162

ARC SET NUMBER 50:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FUQUENE	BIAS	X	129.6316	-.1669811E-09	129.6316	16.01752
FUQUENE	BIAS	Y	-59.84817	0.8571136E-10	-59.84817	16.15986
FUQUENE	BIAS	Z	74.31170	0.4385895E-09	74.31170	20.55644

ARC SET NUMBER 51:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

FURSTNFELDBRUCK	BIAS	X	-9.301289	0.5707176E-11	-9.301289	13.02589
FURSTNFELDBRUCK	BIAS	Y	5.563304	-.1648590E-09	5.563304	12.96670
FURSTNFELDBRUCK	BIAS	Z	4.607510	0.3585142E-09	4.607510	18.26189

ARC SET NUMBER 52:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GNANGARA	BIAS	X	-2.009084	-.1740982E-09	-2.009084	15.92449
GNANGARA	BIAS	Y	-130.8571	-.3647691E-10	-130.8571	15.85973
GNANGARA	BIAS	Z	140.0228	0.6004252E-10	140.0228	20.72760

ARC SET NUMBER 53:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GODHAVN II	BIAS	X	275.1035	0.7104553E-09	275.1035	14.12005
GODHAVN II	BIAS	Y	-308.8449	0.5608781E-09	-308.8449	14.02179
GODHAVN II	BIAS	Z	703.9828	-.6175717E-09	703.9828	19.33771

ARC SET NUMBER 54:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GORNOTAYEZHN II	BIAS	X	11.31182	-.4877700E-09	11.31182	13.33492
GORNOTAYEZHN II	BIAS	Y	-19.01664	0.2251824E-10	-19.01664	13.33808
GORNOTAYEZHN II	BIAS	Z	-78.84940	-.3627671E-09	-78.84940	18.65404

ARC SET NUMBER 55:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE R	BIAS	X	263.4248	-.3282446E-09	263.4248	14.48484
GREAT WHALE R	BIAS	Y	94.80620	0.5316283E-10	94.80620	14.53982
GREAT WHALE R	BIAS	Z	-75.17960	0.1714983E-09	-75.17960	19.52694

ARC SET NUMBER 56:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE RII	BIAS	X	139.0986	-.9166071E-09	139.0986	19.28118
GREAT WHALE RII	BIAS	Y	364.5962	0.1461954E-09	364.5962	19.69622
GREAT WHALE RII	BIAS	Z	-50.82969	-.2092808E-09	-50.82969	25.10882

ARC SET NUMBER 57:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GROCKA	BIAS	X	-21.92952	-.9160213E-10	-21.92952	13.34499
GROCKA	BIAS	Y	-47.05656	-.3967816E-09	-47.05656	13.25627
GROCKA	BIAS	Z	-64.27318	0.2678532E-09	-64.27318	18.45386

ARC SET NUMBER 58:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUAM	BIAS	X	152.3922	-.3838196E-09	152.3922	14.26471
GUAM	BIAS	Y	94.92695	0.3391057E-09	94.92695	15.61512
GUAM	BIAS	Z	58.91013	-.3749785E-09	58.91013	20.28785

ARC SET NUMBER 59:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUANGZHOU II	BIAS	X	72.40235	0.5844084E-09	72.40235	14.87439
GUANGZHOU II	BIAS	Y	65.47336	0.4718863E-09	65.47336	14.82148
GUANGZHOU II	BIAS	Z	5.499655	-.5509924E-09	5.499655	20.02498

ARC SET NUMBER 60:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTEBEESTHOEK	BIAS	X	98.26501	0.1920965E-09	98.26501	15.28848
HARTEBEESTHOEK	BIAS	Y	-13.73824	0.4111239E-09	-13.73824	15.35732
HARTEBEESTHOEK	BIAS	Z	73.59041	-.1061931E-09	73.59041	20.32227

ARC SET NUMBER 61:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTLAND	BIAS	X	-30.03710	0.1923832E-09	-30.03710	13.56172
HARTLAND	BIAS	Y	8.399911	0.3031976E-09	8.399911	13.61120
HARTLAND	BIAS	Z	43.19250	0.3215671E-09	43.19250	18.70856

ARC SET NUMBER 62:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HATIZYO II	BIAS	X	6.298415	-.4581490E-09	6.298415	14.46332
HATIZYO II	BIAS	Y	-790.0879	0.3338054E-09	-790.0879	14.72409
HATIZYO II	BIAS	Z	414.0773	0.7419700E-09	414.0773	19.56272

ARC SET NUMBER 63:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEISS ISLAND II	BIAS	X	93.07143	0.3026181E-09	93.07143	13.64955
HEISS ISLAND II	BIAS	Y	-674.4795	-.1812343E-08	-674.4795	13.58946
HEISS ISLAND II	BIAS	Z	1149.655	0.1537957E-08	1149.655	19.12921

ARC SET NUMBER 64:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEL III	BIAS	X	53.31292	0.5393125E-09	53.31292	13.17476
HEL III	BIAS	Y	-161.5925	-.3233179E-09	-161.5925	13.17579
HEL III	BIAS	Z	-94.58459	0.7427422E-09	-94.58459	18.41368

ARC SET NUMBER 65:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HERMANUS	BIAS	X	16.14114	0.2379050E-09	16.14114	14.75884
HERMANUS	BIAS	Y	16.18348	-.2126131E-09	16.18348	15.16421
HERMANUS	BIAS	Z	23.64824	-.6602233E-10	23.64824	20.09526

ARC SET NUMBER 66:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HONOLULU IV	BIAS	X	-141.7254	0.1525311E-08	-141.7254	15.60690
HONOLULU IV	BIAS	Y	90.25367	0.3794137E-09	90.25367	15.85141
HONOLULU IV	BIAS	Z	-341.2583	0.9388737E-09	-341.2583	20.62259

ARC SET NUMBER 67:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HORNSUND	BIAS	X	-15.94833	-.1442705E-09	-15.94833	15.11014
HORNSUND	BIAS	Y	-130.9075	-.2611490E-09	-130.9075	15.11853
HORNSUND	BIAS	Z	-18.97569	0.9523314E-09	-18.97569	19.88557

ARC SET NUMBER 68:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HUANCAYO	BIAS	X	87.50205	0.4198492E-09	87.50205	15.47097

HUANCAYO	BIAS	Y	49.14817	-.9013106E-09	49.14817	16.02560
HUANCAYO	BIAS	Z	10.19601	0.9716890E-10	10.19601	20.80663

ARC SET NUMBER 69:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HURBANOVO	BIAS	X	20.62840	-.2256438E-10	20.62840	13.48260
HURBANOVO	BIAS	Y	-14.95487	-.2521472E-09	-14.95487	13.45157
HURBANOVO	BIAS	Z	-59.13206	0.1505796E-09	-59.13206	18.55869

ARC SET NUMBER 70:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HYDERABAD	BIAS	X	311.0325	-.2195133E-09	311.0325	14.09886
HYDERABAD	BIAS	Y	17.47005	-.3013090E-09	17.47005	14.24202
HYDERABAD	BIAS	Z	491.9186	-.3366100E-09	491.9186	19.13017

ARC SET NUMBER 71:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
JAIPUR	BIAS	X	172.9941	0.4677056E-09	172.9941	13.69395
JAIPUR	BIAS	Y	-411.3785	-.3477075E-09	-411.3785	13.91259
JAIPUR	BIAS	Z	-34.16130	-.5123970E-09	-34.16130	19.01519

ARC SET NUMBER 72:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KAKIOKA II	BIAS	X	3.498032	-.6414101E-09	3.498032	13.10702
KAKIOKA II	BIAS	Y	11.94955	0.2375077E-09	11.94955	13.32992
KAKIOKA II	BIAS	Z	-92.49074	0.8691334E-09	-92.49074	18.51984

ARC SET NUMBER 73:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOYA	BIAS	X	1.009900	-.8454074E-10	1.009900	13.23048
KANOYA	BIAS	Y	44.87260	0.2181371E-09	44.87260	13.11219
KANOYA	BIAS	Z	-43.70471	-.1350615E-10	-43.70471	18.70319

ARC SET NUMBER 74:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOZAN	BIAS	X	-39.28112	-.3493781E-09	-39.28112	13.60313
KANOZAN	BIAS	Y	33.69614	0.1792242E-09	33.69614	13.69653
KANOZAN	BIAS	Z	-75.96144	0.6775261E-10	-75.96144	18.70511

ARC SET NUMBER 75:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KIRUNA II	BIAS	X	-819.6814	0.8878558E-10	-819.6814	17.58094
KIRUNA II	BIAS	Y	-1825.378	-.1087619E-09	-1825.378	17.58293
KIRUNA II	BIAS	Z	-43.90610	0.4299139E-09	-43.90610	21.75186

ARC SET NUMBER 76:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KLYUCHI II	BIAS	X	199.5041	-.5041860E-09	199.5041	14.07646
KLYUCHI II	BIAS	Y	-92.77919	-.8078322E-10	-92.77919	14.06278
KLYUCHI II	BIAS	Z	-29.52141	-.5958091E-09	-29.52141	19.29730

ARC SET NUMBER 77:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-553.5921	0.9734955E-10	-553.5921	14.34953
KODAIKANAL II	BIAS	Y	272.3445	0.2654653E-09	272.3445	14.46094
KODAIKANAL II	BIAS	Z	-71.71263	0.1739247E-09	-71.71263	19.17326

ARC SET NUMBER 78:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	168.6918	0.3125498E-09	168.6918	13.62370
KRASNAYA PAKHRA	BIAS	Y	-14.23906	-.5392819E-09	-14.23906	13.58740
KRASNAYA PAKHRA	BIAS	Z	177.1582	0.3751539E-09	177.1582	18.79996

ARC SET NUMBER 79:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS	X	9.346108	0.7919302E-09	9.346108	14.43810
LANZHOU II	BIAS	Y	10.22477	0.3569899E-09	10.22477	14.25630
LANZHOU II	BIAS	Z	-54.32957	0.1428148E-08	-54.32957	20.06974

ARC SET NUMBER 80:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS	X	-282.2935	0.9445307E-09	-282.2935	13.67394
LEIRVOGUR	BIAS	Y	591.0403	0.1324101E-08	591.0403	13.64360
LEIRVOGUR	BIAS	Z	-496.2712	0.5662602E-09	-496.2712	19.19548

ARC SET NUMBER 81:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS	X	-118.3725	0.5985334E-09	-118.3725	13.56512
LERWICK II	BIAS	Y	167.7965	0.3778213E-09	167.7965	13.59894
LERWICK II	BIAS	Z	26.98798	0.1313152E-08	26.98798	18.78254

ARC SET NUMBER 82:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOPARSKOYE	BIAS	X	110.0404	0.1996794E-09	110.0404	17.58205
LOPARSKOYE	BIAS	Y	336.3172	-.1655391E-09	336.3172	17.58426
LOPARSKOYE	BIAS	Z	-553.8121	0.1886548E-09	-553.8121	21.75652

ARC SET NUMBER 83:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOVO	BIAS	X	54.91654	0.3780390E-09	54.91654	15.03054
LOVO	BIAS	Y	-1.934121	-.1684078E-09	-1.934121	15.03422
LOVO	BIAS	Z	-3.167679	0.7510703E-09	-3.167679	19.74324

ARC SET NUMBER 84:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS	X	286.1628	-.1565855E-10	286.1628	16.64092
LUANDA BELAS I	BIAS	Y	-32.54995	-.1053992E-08	-32.54995	18.21703
LUANDA BELAS I	BIAS	Z	92.04241	0.4851951E-09	92.04241	22.69101

ARC SET NUMBER 85:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS	X	27.85766	0.4712506E-10	27.85766	14.07460
LUNPING	BIAS	Y	29.26097	-.6428737E-10	29.26097	14.09947

LUNPING	BIAS	Z	34.14873	-.2215235E-09	34.14873	19.10756

ARC SET NUMBER 86:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LVOV	BIAS	X	163.1590	0.7143660E-10	163.1590	13.48201
LVOV	BIAS	Y	124.6347	-.3029638E-09	124.6347	13.46775
LVOV	BIAS	Z	146.5202	0.3515454E-10	146.5202	18.58330

ARC SET NUMBER 87:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
M BOUR	BIAS	X	115.7238	0.2703445E-09	115.7238	15.14808
M BOUR	BIAS	Y	37.66161	0.1008077E-08	37.66161	15.57153
M BOUR	BIAS	Z	37.43845	-.1150052E-08	37.43845	20.33864

ARC SET NUMBER 88:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MACQUARIE ISLND	BIAS	X	271.9907	-.1118024E-08	271.9907	14.33862
MACQUARIE ISLND	BIAS	Y	7.909352	-.5106566E-09	7.909352	14.74164
MACQUARIE ISLND	BIAS	Z	304.2206	0.1617034E-08	304.2206	20.00422

ARC SET NUMBER 89:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MANHAY II	BIAS	X	9.411673	0.3294947E-09	9.411673	17.81919
MANHAY II	BIAS	Y	-18.61773	0.1967124E-10	-18.61773	17.80139
MANHAY II	BIAS	Z	164.9858	0.8115615E-09	164.9858	22.00289

ARC SET NUMBER 90:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAPUTO II	BIAS	X	366.7812	0.3474510E-09	366.7812	14.70990
MAPUTO II	BIAS	Y	32.38449	0.6697305E-09	32.38449	14.82308
MAPUTO II	BIAS	Z	-137.6591	0.3498133E-09	-137.6591	19.90498

ARC SET NUMBER 91:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MARTIN VIVIES	BIAS	X	-615.0699	-.9965509E-09	-615.0699	18.44240
MARTIN VIVIES	BIAS	Y	-643.6116	-.7216649E-09	-643.6116	18.73011
MARTIN VIVIES	BIAS	Z	-1949.892	-.4219380E-09	-1949.892	23.95407

ARC SET NUMBER 92:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAWSON	BIAS	X	16.59336	-.1592865E-09	16.59336	13.95124
MAWSON	BIAS	Y	18.80803	-.7525742E-09	18.80803	13.91813
MAWSON	BIAS	Z	193.4337	-.8006682E-09	193.4337	19.35133

ARC SET NUMBER 93:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEANOOK III	BIAS	X	110.3184	0.2373637E-09	110.3184	13.49360
MEANOOK III	BIAS	Y	12.60750	0.1020163E-09	12.60750	13.60114
MEANOOK III	BIAS	Z	-132.9865	0.1103769E-09	-132.9865	18.91477

ARC SET NUMBER 94:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEMAMBETSU	BIAS	X	-228.6431	-.3982389E-09	-228.6431	13.25104
MEMAMBETSU	BIAS	Y	141.7544	-.8539834E-10	141.7544	13.53785
MEMAMBETSU	BIAS	Z	63.19746	0.4451248E-09	63.19746	18.73699

ARC SET NUMBER 95:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIRNYY III	BIAS	X	-120.0278	-.7488421E-09	-120.0278	14.44961
MIRNYY III	BIAS	Y	54.50367	0.1120387E-08	54.50367	14.13718
MIRNYY III	BIAS	Z	-434.6451	-.1808565E-08	-434.6451	19.65805

ARC SET NUMBER 96:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIZUSAWA	BIAS	X	-128.3755	-.4064668E-09	-128.3755	13.60354
MIZUSAWA	BIAS	Y	43.30600	0.9427374E-10	43.30600	13.68295
MIZUSAWA	BIAS	Z	-187.3558	0.3473302E-09	-187.3558	18.70663

ARC SET NUMBER 97:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOLODEZHNAYA	BIAS	X	-9.175696	0.5084887E-09	-9.175696	14.39114
MOLODEZHNAYA	BIAS	Y	-108.0932	-.8927297E-09	-108.0932	14.31992
MOLODEZHNAYA	BIAS	Z	-240.3918	-.9651500E-10	-240.3918	19.46317

ARC SET NUMBER 98:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOULD BAY	BIAS	X	-27.92967	0.4533843E-09	-27.92967	13.57943
MOULD BAY	BIAS	Y	11.41582	0.2470027E-09	11.41582	13.55568
MOULD BAY	BIAS	Z	-37.81492	-.6798885E-10	-37.81492	19.04168

ARC SET NUMBER 99:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MUNTINLUPA	BIAS	X	-66.90437	-.1056721E-08	-66.90437	14.76461
MUNTINLUPA	BIAS	Y	-38.54795	-.2042228E-11	-38.54795	14.76336
MUNTINLUPA	BIAS	Z	29.88101	-.2258433E-10	29.88101	19.87803

ARC SET NUMBER 100:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAGYCENK II	BIAS	X	3.286180	-.8109809E-10	3.286180	17.62265
NAGYCENK II	BIAS	Y	-2.303447	-.2030552E-09	-2.303447	17.60420
NAGYCENK II	BIAS	Z	-84.58689	0.2040895E-09	-84.58689	21.74209

ARC SET NUMBER 101:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAMPULA	BIAS	X	-49.34616	-.3339577E-09	-49.34616	19.00044
NAMPULA	BIAS	Y	27.23212	0.4081144E-09	27.23212	20.42732
NAMPULA	BIAS	Z	296.5769	0.2295301E-08	296.5769	26.52062

ARC SET NUMBER 102:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NARSSARSSUAQ	BIAS	X	-345.0070	0.9519703E-10	-345.0070	15.31916
NARSSARSSUAQ	BIAS	Y	267.0069	0.3265739E-09	267.0069	15.25043
NARSSARSSUAQ	BIAS	Z	558.7156	-.1614680E-09	558.7156	20.26217

ARC SET NUMBER 103:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NEWPORT	BIAS	X	-26.49582	0.1171673E-09	-26.49582	13.15764
NEWPORT	BIAS	Y	107.3737	0.2597356E-09	107.3737	13.28879
NEWPORT	BIAS	Z	-107.3034	-.1223496E-09	-107.3034	18.55967

ARC SET NUMBER 104:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NIEMEGK	BIAS	X	-20.14445	0.2656775E-09	-20.14445	13.17387
NIEMEGK	BIAS	Y	2.158580	-.1783953E-09	2.158580	13.16224
NIEMEGK	BIAS	Z	-87.31379	0.1286955E-09	-87.31379	18.38774

ARC SET NUMBER 105:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVO KAZALINSK	BIAS	X	-96.63233	0.2127175E-09	-96.63233	13.57140
NOVO KAZALINSK	BIAS	Y	-165.3607	-.1819857E-09	-165.3607	13.52453
NOVO KAZALINSK	BIAS	Z	-.4248481	0.1884804E-09	-.4248481	18.94394

ARC SET NUMBER 106:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVOLAZAREVS II	BIAS	X	-259.2979	0.5867132E-09	-259.2979	20.18629
NOVOLAZAREVS II	BIAS	Y	79.88736	0.2534871E-09	79.88736	20.13596
NOVOLAZAREVS II	BIAS	Z	83.47359	0.5236258E-09	83.47359	21.95494

ARC SET NUMBER 107:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NURMIJARVI	BIAS	X	294.9102	0.7049393E-09	294.9102	14.79568
NURMIJARVI	BIAS	Y	-107.6796	-.6380985E-09	-107.6796	14.81235
NURMIJARVI	BIAS	Z	94.50037	0.9906235E-09	94.50037	18.79957

ARC SET NUMBER 108:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
OTTAWA	BIAS	X	148.3680	0.2114748E-09	148.3680	13.90051
OTTAWA	BIAS	Y	-142.3725	0.6042458E-09	-142.3725	13.97950
OTTAWA	BIAS	Z	160.7349	0.7977509E-09	160.7349	19.37726

ARC SET NUMBER 109:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PAMATAI II	BIAS	X	-646.6609	0.3608861E-09	-646.6609	15.74008
PAMATAI II	BIAS	Y	-738.0552	-.1959906E-09	-738.0552	15.61569
PAMATAI II	BIAS	Z	-97.83259	-.5567186E-09	-97.83259	20.64699

ARC SET NUMBER 110:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PANAGYURISHTE	BIAS	X	-177.8739	-.4279579E-10	-177.8739	15.02077
PANAGYURISHTE	BIAS	Y	-168.5971	-.2038649E-09	-168.5971	15.00368
PANAGYURISHTE	BIAS	Z	-201.5060	-.1243444E-09	-201.5060	19.66138

ARC SET NUMBER 111:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

PARATUNKA	BIAS	X	-331.8850	0.5183807E-09	-331.8850	14.19598
PARATUNKA	BIAS	Y	224.7400	-.4823336E-09	224.7400	14.35227
PARATUNKA	BIAS	Z	236.2734	0.3265060E-09	236.2734	19.53433

ARC SET NUMBER 112:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PATRONY	BIAS	X	35.17752	-.6915399E-09	35.17752	14.20080
PATRONY	BIAS	Y	41.13752	-.3187214E-09	41.13752	14.22859
PATRONY	BIAS	Z	-81.66380	-.9447532E-10	-81.66380	19.59331

ARC SET NUMBER 113:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PILAR	BIAS	X	16.94508	-.2139267E-09	16.94508	15.56562
PILAR	BIAS	Y	-.4044377	-.2511633E-09	-.4044377	15.78856
PILAR	BIAS	Z	-12.19653	-.1204921E-09	-12.19653	20.77723

ARC SET NUMBER 114:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PLESHENITZI	BIAS	X	290.7655	0.4533225E-09	290.7655	13.49362
PLESHENITZI	BIAS	Y	169.0695	-.3768366E-09	169.0695	13.48859
PLESHENITZI	BIAS	Z	-138.1776	0.5398872E-09	-138.1776	18.63430

ARC SET NUMBER 115:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PODKAM TUNGUSKA	BIAS	X	75.47700	-.3773075E-09	75.47700	14.45418
PODKAM TUNGUSKA	BIAS	Y	8.398435	-.2834149E-09	8.398435	14.51758
PODKAM TUNGUSKA	BIAS	Z	-288.6189	-.1306139E-08	-288.6189	20.02813

ARC SET NUMBER 116:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT MORESBY	BIAS	X	17.38040	0.2011514E-09	17.38040	14.89941
PORT MORESBY	BIAS	Y	59.22324	0.2120121E-09	59.22324	16.14058
PORT MORESBY	BIAS	Z	263.6596	0.7832291E-09	263.6596	20.61374

ARC SET NUMBER 117:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-ALFRED I	BIAS	X	-805.1411	0.3618436E-09	-805.1411	17.00317
PORT-ALFRED I	BIAS	Y	1102.702	-.2835898E-09	1102.702	16.60812
PORT-ALFRED I	BIAS	Z	172.0290	-.3330749E-10	172.0290	23.16589

ARC SET NUMBER 118:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-AUX-FRANCA	BIAS	X	227.7451	0.3622747E-09	227.7451	14.37396
PORT-AUX-FRANCA	BIAS	Y	194.7221	-.3598024E-09	194.7221	14.73846
PORT-AUX-FRANCA	BIAS	Z	677.4757	-.9122141E-09	677.4757	19.99627

ARC SET NUMBER 119:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RESOLUTE BAY	BIAS	X	39.89250	0.7319628E-09	39.89250	13.57724
RESOLUTE BAY	BIAS	Y	31.67267	0.1105773E-09	31.67267	13.60737
RESOLUTE BAY	BIAS	Z	69.85815	0.1015970E-09	69.85815	19.03269

ARC SET NUMBER 120:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RUDE SKOV	BIAS	X	41.40537	0.3007923E-09	41.40537	16.02366
RUDE SKOV	BIAS	Y	-8.220098	-.7427446E-10	-8.220098	16.02491
RUDE SKOV	BIAS	Z	-58.62151	0.1422398E-09	-58.62151	20.49340

ARC SET NUMBER 121:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SABHAWALA II	BIAS	X	-7.625653	0.4966793E-09	-7.625653	13.70020
SABHAWALA II	BIAS	Y	-69.04516	-.3097508E-09	-69.04516	13.86201
SABHAWALA II	BIAS	Z	22.62059	-.8527248E-09	22.62059	19.06488

ARC SET NUMBER 122:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN JUAN II	BIAS	X	-45.49036	-.8786261E-09	-45.49036	14.86086
SAN JUAN II	BIAS	Y	181.9911	-.1103967E-08	181.9911	15.45949
SAN JUAN II	BIAS	Z	186.9998	-.4512134E-09	186.9998	20.45779

ARC SET NUMBER 123:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN PABLO	BIAS	X	30.95139	0.3625183E-10	30.95139	15.57351
SAN PABLO	BIAS	Y	15.17728	0.4122640E-09	15.17728	15.59612
SAN PABLO	BIAS	Z	-76.36226	0.6473210E-09	-76.36226	20.35398

ARC SET NUMBER 124:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SANAE II	BIAS	X	-46.87940	0.1952327E-08	-46.87940	16.83444
SANAE II	BIAS	Y	-75.58125	0.1570208E-08	-75.58125	15.68741
SANAE II	BIAS	Z	47.76503	0.3384086E-09	47.76503	21.81237

ARC SET NUMBER 125:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHESHAN	BIAS	X	-226.3274	0.2445134E-09	-226.3274	13.97727
SHESHAN	BIAS	Y	72.64053	-.2123028E-09	72.64053	13.98082
SHESHAN	BIAS	Z	226.9920	0.1692516E-10	226.9920	19.02471

ARC SET NUMBER 126:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHILLONG	BIAS	X	-95.96249	0.1111237E-08	-95.96249	15.12526
SHILLONG	BIAS	Y	-87.87316	0.1526270E-09	-87.87316	14.82158
SHILLONG	BIAS	Z	-371.7206	-.1354544E-08	-371.7206	20.21375

ARC SET NUMBER 127:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SITKA III	BIAS	X	9.194275	0.1872164E-09	9.194275	14.70155
SITKA III	BIAS	Y	-10.41663	-.1035477E-09	-10.41663	14.72058
SITKA III	BIAS	Z	-53.31341	-.2631905E-09	-53.31341	19.90669

ARC SET NUMBER 128:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SODANKYLA	BIAS	X	-149.3907	0.7887671E-09	-149.3907	13.34583

SODANKYLA	BIAS	Y	-108.7441	-.1014996E-08	-108.7441	13.39486
SODANKYLA	BIAS	Z	-591.2422	0.1882585E-08	-591.2422	18.72484

ARC SET NUMBER 129:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SOUTH GEORGIA	BIAS	X	-74.63626	-.4613292E-09	-74.63626	17.59053
SOUTH GEORGIA	BIAS	Y	-366.0598	-.6798633E-10	-366.0598	17.60495
SOUTH GEORGIA	BIAS	Z	104.9208	0.1347623E-09	104.9208	21.79565

ARC SET NUMBER 130:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ST JOHN S	BIAS	X	60.95105	-.2205851E-09	60.95105	14.70031
ST JOHN S	BIAS	Y	25.00210	-.3818474E-09	25.00210	14.36364
ST JOHN S	BIAS	Z	-1.803983	0.9661998E-09	-1.803983	20.01673

ARC SET NUMBER 131:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEKOLINIY	BIAS	X	-267.9334	0.9681669E-11	-267.9334	14.48371
STEKOLINIY	BIAS	Y	-739.0452	0.2972629E-09	-739.0452	14.70824
STEKOLINIY	BIAS	Z	42.73577	0.4644955E-09	42.73577	20.09344

ARC SET NUMBER 132:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEPANOVKA III	BIAS	X	-97.13624	0.2455587E-09	-97.13624	13.57870
STEPANOVKA III	BIAS	Y	-700.8429	-.3472061E-09	-700.8429	13.53618
STEPANOVKA III	BIAS	Z	69.62788	0.5552492E-09	69.62788	18.68377

ARC SET NUMBER 133:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SURLARI II	BIAS	X	21.87791	-.2221440E-09	21.87791	13.36598
SURLARI II	BIAS	Y	-32.51592	-.4562581E-09	-32.51592	13.29691
SURLARI II	BIAS	Z	-64.26061	0.8181130E-11	-64.26061	18.50725

ARC SET NUMBER 134:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SYOWA BASE II	BIAS	X	-30.45907	0.9082729E-09	-30.45907	15.27898
SYOWA BASE II	BIAS	Y	-58.95040	-.7857688E-09	-58.95040	15.07840
SYOWA BASE II	BIAS	Z	18.04822	0.4226616E-09	18.04822	20.20073

ARC SET NUMBER 135:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TAMANRASSET IV	BIAS	X	50.99497	-.2944364E-09	50.99497	15.85286
TAMANRASSET IV	BIAS	Y	-238.8313	0.7645384E-09	-238.8313	15.77782
TAMANRASSET IV	BIAS	Z	-34.08164	0.1159792E-08	-34.08164	21.28567

ARC SET NUMBER 136:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TANGERANG III	BIAS	X	16.48414	0.3239279E-09	16.48414	15.56092
TANGERANG III	BIAS	Y	-36.24498	0.9553573E-09	-36.24498	16.02817
TANGERANG III	BIAS	Z	89.42600	0.7193235E-09	89.42600	21.02088

ARC SET NUMBER 137:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TATUOCA III	BIAS	X	54.85540	-.5799345E-09	54.85540	17.22965
TATUOCA III	BIAS	Y	-96.97562	-.1138567E-10	-96.97562	17.71251
TATUOCA III	BIAS	Z	67.26723	-.6802062E-10	67.26723	22.38075

ARC SET NUMBER 138:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE	BIAS	X	-278.7567	0.8642178E-09	-278.7567	15.33750
THULE	BIAS	Y	228.8221	0.6280493E-09	228.8221	15.27385
THULE	BIAS	Z	-66.90928	0.3233389E-09	-66.90928	20.17997

ARC SET NUMBER 139:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE III	BIAS	X	-53.28900	0.8277736E-09	-53.28900	14.64396
THULE III	BIAS	Y	92.62339	0.6937621E-09	92.62339	14.57886
THULE III	BIAS	Z	24.29387	0.3850279E-09	24.29387	19.66079

ARC SET NUMBER 140:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIHANY II	BIAS	X	-12.76426	-.1244929E-09	-12.76426	14.45438
TIHANY II	BIAS	Y	6.078058	-.2686039E-09	6.078058	14.41149
TIHANY II	BIAS	Z	-50.83755	0.4977307E-09	-50.83755	20.42667

ARC SET NUMBER 141:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIKSI VI	BIAS	X	-67.30383	0.3716257E-09	-67.30383	14.89619
TIKSI VI	BIAS	Y	-155.9630	0.2397263E-09	-155.9630	14.89247
TIKSI VI	BIAS	Z	-109.5500	-.3528709E-09	-109.5500	20.15485

ARC SET NUMBER 142:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TOLEDO III	BIAS	X	15.88082	0.1723551E-09	15.88082	17.51409
TOLEDO III	BIAS	Y	4.130312	0.2793377E-10	4.130312	17.51495
TOLEDO III	BIAS	Z	-12.82196	-.2561215E-10	-12.82196	21.61840

ARC SET NUMBER 143:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TRIVANDRUM	BIAS	X	285.2767	0.6532995E-09	285.2767	14.49669
TRIVANDRUM	BIAS	Y	199.4305	0.5440825E-09	199.4305	14.66019
TRIVANDRUM	BIAS	Z	205.0729	0.1985287E-09	205.0729	19.31075

ARC SET NUMBER 144:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TROMSO	BIAS	X	123.2017	0.5237944E-09	123.2017	13.38175
TROMSO	BIAS	Y	-407.9229	-.7099241E-09	-407.9229	13.43757
TROMSO	BIAS	Z	114.4386	0.2691403E-08	114.4386	18.78394

ARC SET NUMBER 145:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TSUMEB	BIAS	X	65.93619	-.6737650E-10	65.93619	14.30432
TSUMEB	BIAS	Y	-50.99594	-.7492412E-09	-50.99594	14.95848

TSUMEB	BIAS	Z	96.79866	0.2578699E-09	96.79866	19.87377

ARC SET NUMBER 146:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TUCSON	BIAS	X	-42.51434	0.4894770E-10	-42.51434	14.11063
TUCSON	BIAS	Y	-60.33773	-.1104857E-09	-60.33773	14.22094
TUCSON	BIAS	Z	138.6308	0.7561980E-09	138.6308	19.29404

ARC SET NUMBER 147:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TULSA II	BIAS	X	-23.77639	0.6851307E-09	-23.77639	31.07311
TULSA II	BIAS	Y	-34.75670	-.1010926E-08	-34.75670	30.75066
TULSA II	BIAS	Z	45.07173	-.3344601E-09	45.07173	34.08812

ARC SET NUMBER 148:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
UJJAIN	BIAS	X	-226.4818	-.2081068E-09	-226.4818	17.48967
UJJAIN	BIAS	Y	181.5941	-.3634152E-10	181.5941	17.49991
UJJAIN	BIAS	Z	278.0705	0.7011684E-10	278.0705	21.57100

ARC SET NUMBER 149:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
URUMQI	BIAS	X	-45.59675	0.1221032E-10	-45.59675	15.29401
URUMQI	BIAS	Y	-12.56014	0.2371785E-09	-12.56014	15.25769
URUMQI	BIAS	Z	51.20987	0.5378693E-09	51.20987	20.23473

ARC SET NUMBER 150:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VALENTIA	BIAS	X	138.6790	0.1120191E-09	138.6790	13.34351
VALENTIA	BIAS	Y	-58.99286	0.6425674E-09	-58.99286	13.47753
VALENTIA	BIAS	Z	12.73431	0.1343241E-09	12.73431	18.75721

ARC SET NUMBER 151:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VANNOVSKAYA II	BIAS	X	190.7480	0.7883586E-09	190.7480	14.03345
VANNOVSKAYA II	BIAS	Y	94.28512	-.4507623E-10	94.28512	13.84566
VANNOVSKAYA II	BIAS	Z	69.47745	-.1801626E-09	69.47745	19.23245

ARC SET NUMBER 152:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VASSOURAS	BIAS	X	87.45710	0.1073841E-08	87.45710	15.39054
VASSOURAS	BIAS	Y	-62.91882	-.8428904E-10	-62.91882	15.83738
VASSOURAS	BIAS	Z	-34.74810	-.7483627E-09	-34.74810	20.82697

ARC SET NUMBER 153:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VICTORIA	BIAS	X	41.44545	0.2325646E-09	41.44545	13.86457
VICTORIA	BIAS	Y	2.848211	0.9702230E-10	2.848211	14.00063
VICTORIA	BIAS	Z	-305.3562	-.6867663E-09	-305.3562	19.20481

ARC SET NUMBER 154:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOSTOK	BIAS	X	33.40715	0.1248521E-10	33.40715	15.03657
VOSTOK	BIAS	Y	60.90790	0.2359447E-08	60.90790	14.64079
VOSTOK	BIAS	Z	18.95150	0.1369785E-08	18.95150	20.22893

ARC SET NUMBER 155:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOYEYKOVO	BIAS	X	95.13995	0.4628628E-09	95.13995	13.87625
VOYEYKOVO	BIAS	Y	16.14048	-.5155535E-09	16.14048	13.88300
VOYEYKOVO	BIAS	Z	-277.7936	0.3248253E-09	-277.7936	18.93315

ARC SET NUMBER 156:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WIEN KOBENZL	BIAS	X	34.40597	0.2969595E-10	34.40597	13.21049
WIEN KOBENZL	BIAS	Y	-.7352376	-.2646337E-09	-.7352376	13.16988
WIEN KOBENZL	BIAS	Z	8.771793	0.3321596E-09	8.771793	18.37478

ARC SET NUMBER 157:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WINGST	BIAS	X	63.89538	0.2912996E-09	63.89538	13.47538
WINGST	BIAS	Y	45.74687	-.5475481E-10	45.74687	13.47347
WINGST	BIAS	Z	-78.56568	0.8569331E-09	-78.56568	18.61170

ARC SET NUMBER 158:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WITTEVEEN	BIAS	X	36.18361	0.3514226E-09	36.18361	13.20076
WITTEVEEN	BIAS	Y	2.917403	0.2898704E-11	2.917403	13.19835
WITTEVEEN	BIAS	Z	-85.79693	0.8355917E-09	-85.79693	18.42911

ARC SET NUMBER 159:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WUHAN	BIAS	X	63.66352	0.4526505E-09	63.66352	14.43245
WUHAN	BIAS	Y	28.99858	-.1145505E-09	28.99858	14.41104
WUHAN	BIAS	Z	-57.11601	0.6710188E-09	-57.11601	19.63430

ARC SET NUMBER 160:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YAKUTSK II	BIAS	X	94.38355	0.1941266E-10	94.38355	14.09688
YAKUTSK II	BIAS	Y	-1177.299	0.3190167E-09	-1177.299	14.15298
YAKUTSK II	BIAS	Z	97.62050	-.6644222E-09	97.62050	19.44086

ARC SET NUMBER 161:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR	BIAS	X	-265.7516	-.1410169E-11	-265.7516	17.51427
YANGI-BAZAR	BIAS	Y	40.06960	-.8337000E-11	40.06960	17.51732
YANGI-BAZAR	BIAS	Z	-110.2314	0.2991516E-10	-110.2314	21.61540

ARC SET NUMBER 162:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR II	BIAS	X	-259.4994	0.7936649E-09	-259.4994	15.41625
YANGI-BAZAR II	BIAS	Y	43.40622	-.2130703E-09	43.40622	15.49581
YANGI-BAZAR II	BIAS	Z	-70.75432	0.7557064E-09	-70.75432	20.79725

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ARC SET NUMBER 163:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------      ------------     ------------     --------------
YELLOW-KNIFE      BIAS  X        403.4077      -.4951834E-11      403.4077          13.66825
YELLOW-KNIFE      BIAS  Y       -210.8192      -.8041401E-10     -210.8192          13.71171
YELLOW-KNIFE      BIAS  Z        142.6798      0.1326372E-09      142.6798          18.97493

ARC SET NUMBER 164:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------      ------------     ------------     --------------
YUZHNO SAKH IV    BIAS  X       -74.34366      -.5692438E-10     -74.34366          14.40052
YUZHNO SAKH IV    BIAS  Y       -56.98588      0.8307829E-10     -56.98588          14.43908
YUZHNO SAKH IV    BIAS  Z        82.98722      0.7585042E-10      82.98722          19.29228

ARC SET NUMBER 165:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------      ------------     ------------     --------------
ZAYMISHCHE III    BIAS  X       -113.5901      -.7144292E-10     -113.5901          13.41177
ZAYMISHCHE III    BIAS  Y       -117.8156      -.6000226E-09     -117.8156          13.35476
ZAYMISHCHE III    BIAS  Z        120.7503      0.5139841E-10      120.7503          18.74501

--LAST ARC-SET PROCESSED.  TOTAL NUMBER OF ARC-SETS EQUALS:   165


 GENERATING COMMON PARAMETER MATRIX STATISTICS:
*** ND =     2IER = 0   ** STATC **

-- In STATC. Input sigmas and matrix from unit 15
GREADO INPUTING RESTART DATA FROM UNIT 15

DIMENSION VARIABLES READ FROM UNIT 15:
   IWIO = 0     INQL= 1   INTMTH= 1  EXTMTH = 0
   PEWP = 67.0    IVLPG = 1
   IWLPG = 1  NMAX =   13   NMEX =    1
   NMINI=  1   NMINE=  1   NCOM =  322
   MA =  0  MW =         0    NTIMI =  120
   NPSNI =    0  NTIME =    0  NPSNE =    0
   NOBS =    0   NSAT =   1   NSRV =   0
   MODEXT flag =  0
READING D MATRIX FROM UNIT 15
```

ITERATION # 3 ARC PARAMETER SOLUTIONS PLUS STATISTICS:

ARC SET NUMBER 1:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ABISKO VI	BIAS	X	28.57538	0.1160771E-08	28.57538	15.06946
ABISKO VI	BIAS	Y	56.92638	0.1093216E-08	56.92638	15.07814
ABISKO VI	BIAS	Z	30.34329	-.1397433E-09	30.34329	19.81272

ARC SET NUMBER 2:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ADDIS ABABA II	BIAS	X	545.8304	0.7348580E-08	545.8304	15.02142
ADDIS ABABA II	BIAS	Y	7.723413	0.1908301E-07	7.723413	15.49606
ADDIS ABABA II	BIAS	Z	120.5599	-.9653374E-08	120.5599	20.71325

ARC SET NUMBER 3:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALERT	BIAS	X	-8.016323	-.7019809E-09	-8.016323	14.19436
ALERT	BIAS	Y	29.10167	-.4986912E-09	29.10167	14.10499
ALERT	BIAS	Z	-189.7390	0.9408134E-09	-189.7390	19.41163

ARC SET NUMBER 4:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALIBAG III	BIAS	X	-204.7957	0.2163425E-09	-204.7957	13.72926
ALIBAG III	BIAS	Y	453.7206	0.6311911E-09	453.7206	14.06599
ALIBAG III	BIAS	Z	605.7541	-.3403865E-08	605.7541	19.03788

ARC SET NUMBER 5:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMA ATA	BIAS	X	163.0393	0.1260271E-10	163.0393	13.78391
ALMA ATA	BIAS	Y	23.07266	0.1057856E-08	23.07266	13.81715
ALMA ATA	BIAS	Z	-176.3545	0.3052781E-08	-176.3545	19.15077

ARC SET NUMBER 6:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMERIA	BIAS	X	-11.70597	-.6976465E-09	-11.70597	13.84366
ALMERIA	BIAS	Y	12.50461	0.1031255E-08	12.50461	13.78458
ALMERIA	BIAS	Z	10.32350	0.6411001E-08	10.32350	18.98860

ARC SET NUMBER 7:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AMATSIA	BIAS	X	111.2554	0.5412963E-08	111.2554	14.11521
AMATSIA	BIAS	Y	34.09788	0.9449722E-08	34.09788	14.27332
AMATSIA	BIAS	Z	280.3572	0.4759699E-09	280.3572	19.51423

ARC SET NUMBER 8:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ANNAMALAINAG II	BIAS	X	151.9788	-.2493744E-09	151.9788	14.54707

ANNAMALAINAG II	BIAS	Y	-105.3937	0.2175071E-08	-105.3937	14.61961
ANNAMALAINAG II	BIAS	Z	-48.71153	0.1253992E-08	-48.71153	19.32567

ARC SET NUMBER 9:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
APIA IV	BIAS	X	-25.42761	0.2096654E-08	-25.42761	15.74932
APIA IV	BIAS	Y	201.8548	-.2364538E-08	201.8548	15.80114
APIA IV	BIAS	Z	-883.9603	0.1849066E-08	-883.9603	20.67172

ARC SET NUMBER 10:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AQUILA	BIAS	X	10.12788	0.3588446E-08	10.12788	13.43144
AQUILA	BIAS	Y	39.84895	0.3269020E-10	39.84895	13.29327
AQUILA	BIAS	Z	-10.55281	-.7470116E-09	-10.55281	18.50201

ARC SET NUMBER 11:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARCTOWSKI	BIAS	X	-146.8420	0.5821714E-08	-146.8420	14.93099
ARCTOWSKI	BIAS	Y	314.7261	-.1730301E-07	314.7261	15.01885
ARCTOWSKI	BIAS	Z	675.4450	0.8114925E-09	675.4450	20.04618

ARC SET NUMBER 12:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARGENTINE ISLND	BIAS	X	87.95537	0.6747898E-08	87.95537	15.30012
ARGENTINE ISLND	BIAS	Y	-78.58460	-.1354855E-07	-78.58460	15.29506
ARGENTINE ISLND	BIAS	Z	477.7146	0.2456877E-08	477.7146	20.24217

ARC SET NUMBER 13:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARTI	BIAS	X	117.8898	0.2452925E-08	117.8898	13.69508
ARTI	BIAS	Y	-263.9447	0.1924918E-08	-263.9447	13.67255
ARTI	BIAS	Z	441.8446	0.1156305E-08	441.8446	18.99351

ARC SET NUMBER 14:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BAKER LAKE VII	BIAS	X	170.8348	-.1389033E-08	170.8348	13.52991
BAKER LAKE VII	BIAS	Y	-34.11236	-.7556594E-09	-34.11236	13.59231
BAKER LAKE VII	BIAS	Z	-77.19435	0.2340874E-08	-77.19435	18.98507

ARC SET NUMBER 15:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BANGUI IV	BIAS	X	-130.5921	0.7453891E-08	-130.5921	14.73084
BANGUI IV	BIAS	Y	-30.85600	0.2758539E-07	-30.85600	29.27841
BANGUI IV	BIAS	Z	210.3408	0.1572690E-07	210.3408	20.38382

ARC SET NUMBER 16:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BARROW IV	BIAS	X	18.40859	-.1287189E-08	18.40859	15.27428
BARROW IV	BIAS	Y	-56.51215	-.3029936E-09	-56.51215	13.96839
BARROW IV	BIAS	Z	-43.64419	0.8788897E-09	-43.64419	19.36411

ARC SET NUMBER 17:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEIJING	BIAS	X	627.2949	-.8185736E-09	627.2949	13.76492
BEIJING	BIAS	Y	-227.7903	0.2588036E-08	-227.7903	13.76403
BEIJING	BIAS	Z	437.9570	0.2605684E-08	437.9570	19.10531

ARC SET NUMBER 18:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BELSK	BIAS	X	118.6909	0.7715766E-09	118.6909	13.17138
BELSK	BIAS	Y	137.5425	0.2659435E-08	137.5425	13.16325
BELSK	BIAS	Z	304.0286	0.5780164E-09	304.0286	18.38324

ARC SET NUMBER 19:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEREZNAYKI III	BIAS	X	-394.7195	0.1199762E-08	-394.7195	39.10606
BEREZNAYKI III	BIAS	Y	-271.6509	0.2051903E-08	-271.6509	39.10760
BEREZNAYKI III	BIAS	Z	246.2802	0.3276412E-08	246.2802	41.45052

ARC SET NUMBER 20:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BJORNOYA II	BIAS	X	-98.29697	0.1946191E-08	-98.29697	13.71784
BJORNOYA II	BIAS	Y	49.03023	0.1686610E-08	49.03023	13.77648
BJORNOYA II	BIAS	Z	26.88014	0.9590598E-09	26.88014	19.06399

ARC SET NUMBER 21:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOROK	BIAS	X	-15.96273	0.1102407E-08	-15.96273	13.57610
BOROK	BIAS	Y	-68.24341	0.1352718E-08	-68.24341	13.56172
BOROK	BIAS	Z	-442.5510	0.3807486E-09	-442.5510	18.76716

ARC SET NUMBER 22:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOULDER	BIAS	X	3.318437	-.2361772E-08	3.318437	13.40789
BOULDER	BIAS	Y	49.76174	0.3412024E-08	49.76174	13.51779
BOULDER	BIAS	Z	-168.5685	0.1937725E-09	-168.5685	18.94865

ARC SET NUMBER 23:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE	BIAS	X	78.73192	0.4813701E-09	78.73192	17.57283
BRORFELDE	BIAS	Y	-101.9772	0.7459722E-09	-101.9772	17.57380
BRORFELDE	BIAS	Z	-207.1917	-.8203876E-09	-207.1917	21.72499

ARC SET NUMBER 24:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE II	BIAS	X	73.01435	0.1194502E-08	73.01435	17.80900
BRORFELDE II	BIAS	Y	-100.8241	0.2053332E-08	-100.8241	17.81100
BRORFELDE II	BIAS	Z	-189.2273	-.2829743E-08	-189.2273	22.05674

ARC SET NUMBER 25:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BUDKOV	BIAS	X	-29.82780	0.1510632E-08	-29.82780	13.85777
BUDKOV	BIAS	Y	-13.43877	0.1588412E-08	-13.43877	13.83656

BUDKOV	BIAS	Z	-41.92951	-.3530346E-09	-41.92951	18.83602

ARC SET NUMBER 26:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAMBRIDGE BAY	BIAS	X	107.3454	-.1310404E-08	107.3454	13.48263
CAMBRIDGE BAY	BIAS	Y	-89.52060	0.6594619E-09	-89.52060	13.53275
CAMBRIDGE BAY	BIAS	Z	132.1442	0.1570584E-08	132.1442	22.69161

ARC SET NUMBER 27:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANARIAS	BIAS	X	-423.8236	0.2948314E-08	-423.8236	15.12643
CANARIAS	BIAS	Y	105.2220	0.1477790E-07	105.2220	15.77508
CANARIAS	BIAS	Z	-1033.470	-.3817193E-08	-1033.470	20.56475

ARC SET NUMBER 28:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANBERRA	BIAS	X	8.457610	-.1392311E-08	8.457610	14.78607
CANBERRA	BIAS	Y	47.69532	-.2518096E-08	47.69532	15.21196
CANBERRA	BIAS	Z	90.99976	0.5819772E-09	90.99976	20.42138

ARC SET NUMBER 29:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAPE WELLEN III	BIAS	X	-69.12277	0.8760605E-09	-69.12277	14.23194
CAPE WELLEN III	BIAS	Y	65.95785	0.1273867E-09	65.95785	13.77402
CAPE WELLEN III	BIAS	Z	-88.99846	0.2185512E-08	-88.99846	19.40673

ARC SET NUMBER 30:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CASEY	BIAS	X	778.9665	0.2694850E-09	778.9665	75.88130
CASEY	BIAS	Y	-340.6041	-.1339475E-08	-340.6041	75.79793
CASEY	BIAS	Z	-810.7437	0.6770049E-09	-810.7437	77.01950

ARC SET NUMBER 31:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHA PA II	BIAS	X	-495.1139	0.2135164E-08	-495.1139	18.22999
CHA PA II	BIAS	Y	-71.79349	0.2588274E-08	-71.79349	17.93070
CHA PA II	BIAS	Z	-320.8261	-.6123513E-08	-320.8261	22.54514

ARC SET NUMBER 32:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHAMBON FORETII	BIAS	X	-63.16458	0.1118004E-08	-63.16458	13.26200
CHAMBON FORETII	BIAS	Y	-19.89800	-.4796427E-09	-19.89800	13.24954
CHAMBON FORETII	BIAS	Z	92.71235	-.7642325E-09	92.71235	18.46180

ARC SET NUMBER 33:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHANGCHUN	BIAS	X	-99.60007	-.3803996E-09	-99.60007	14.61345
CHANGCHUN	BIAS	Y	19.55149	-.3609400E-09	19.55149	14.60124
CHANGCHUN	BIAS	Z	168.3689	0.2460580E-08	168.3689	19.68804

ARC SET NUMBER 34:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

CHELYUSKIN IV	BIAS	X	-14.37115	-.2249000E-09	-14.37115	15.23441
CHELYUSKIN IV	BIAS	Y	-111.3420	-.8838814E-09	-111.3420	15.20899
CHELYUSKIN IV	BIAS	Z	-77.78614	-.1385390E-08	-77.78614	20.37606

ARC SET NUMBER 35:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHICHIJIMA	BIAS	X	-306.9389	0.7592142E-09	-306.9389	15.02940
CHICHIJIMA	BIAS	Y	-37.32359	0.2069171E-08	-37.32359	15.11607
CHICHIJIMA	BIAS	Z	231.5310	0.1095110E-08	231.5310	19.71679

ARC SET NUMBER 36:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COIMBRA	BIAS	X	25.08080	0.1671256E-08	25.08080	13.77800
COIMBRA	BIAS	Y	-13.54769	0.3763181E-08	-13.54769	13.92119
COIMBRA	BIAS	Z	-2.952636	0.2323405E-08	-2.952636	18.99970

ARC SET NUMBER 37:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COLLEGE III	BIAS	X	-8.926992	-.4377139E-09	-8.926992	13.69116
COLLEGE III	BIAS	Y	-48.63847	0.3229703E-09	-48.63847	13.46828
COLLEGE III	BIAS	Z	-93.27746	0.7445296E-09	-93.27746	18.98973

ARC SET NUMBER 38:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DAVIS	BIAS	X	-251.6504	0.8518736E-09	-251.6504	15.23769
DAVIS	BIAS	Y	210.1589	0.2768539E-08	210.1589	15.12069
DAVIS	BIAS	Z	156.1615	-.2498319E-08	156.1615	20.50678

ARC SET NUMBER 39:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DEL RIO	BIAS	X	303.1654	-.6576030E-08	303.1654	17.88540
DEL RIO	BIAS	Y	103.1951	0.1011552E-07	103.1951	17.53918
DEL RIO	BIAS	Z	-420.4695	0.8811557E-08	-420.4695	22.74430

ARC SET NUMBER 40:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DIKSON V	BIAS	X	-75.03408	-.8347945E-09	-75.03408	13.87569
DIKSON V	BIAS	Y	-137.7795	-.1635495E-08	-137.7795	13.82086
DIKSON V	BIAS	Z	-236.1050	0.1427316E-08	-236.1050	19.24386

ARC SET NUMBER 41:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOMBAS III	BIAS	X	-69.88426	0.1541657E-08	-69.88426	13.52696
DOMBAS III	BIAS	Y	-81.96511	0.9846087E-09	-81.96511	13.54327
DOMBAS III	BIAS	Z	-252.5105	-.2535370E-08	-252.5105	18.73324

ARC SET NUMBER 42:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOURBES	BIAS	X	18.73706	0.1031794E-08	18.73706	13.48013
DOURBES	BIAS	Y	-17.14998	-.1913477E-10	-17.14998	13.47315
DOURBES	BIAS	Z	68.11570	-.1148373E-08	68.11570	18.59120

ARC SET NUMBER 43:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUMONT DURVILLE	BIAS	X	-139.9889	-.3180931E-08	-139.9889	14.69272
DUMONT DURVILLE	BIAS	Y	-422.6383	0.3548353E-09	-422.6383	14.60946
DUMONT DURVILLE	BIAS	Z	-2838.121	-.8043934E-09	-2838.121	20.06569

ARC SET NUMBER 44:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUSHETI II	BIAS	X	-204.6201	-.7665146E-09	-204.6201	14.04334
DUSHETI II	BIAS	Y	8.163211	-.8466969E-09	8.163211	13.93032
DUSHETI II	BIAS	Z	-112.9310	0.9104333E-09	-112.9310	19.07744

ARC SET NUMBER 45:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DYMER	BIAS	X	-9.152949	0.2032914E-09	-9.152949	13.84967
DYMER	BIAS	Y	84.23226	0.1299127E-08	84.23226	13.83666
DYMER	BIAS	Z	107.9275	0.1726145E-08	107.9275	18.85184

ARC SET NUMBER 46:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ESKDALEMUIR	BIAS	X	18.66324	0.7267463E-09	18.66324	13.54685
ESKDALEMUIR	BIAS	Y	-49.50776	-.1183427E-08	-49.50776	13.58527
ESKDALEMUIR	BIAS	Z	-64.61645	-.1370063E-08	-64.61645	18.71504

ARC SET NUMBER 47:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
EYREWELL	BIAS	X	-16.60732	-.1615142E-08	-16.60732	14.95058
EYREWELL	BIAS	Y	-39.79584	0.1325321E-08	-39.79584	14.98256
EYREWELL	BIAS	Z	61.26070	-.1932540E-09	61.26070	20.23005

ARC SET NUMBER 48:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FORT CHURCHI II	BIAS	X	-108.6496	-.1999257E-08	-108.6496	13.59856
FORT CHURCHI II	BIAS	Y	40.52576	-.1229422E-08	40.52576	13.61432
FORT CHURCHI II	BIAS	Z	-256.1316	0.2486716E-08	-256.1316	19.06641

ARC SET NUMBER 49:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FREDERICKSBURG	BIAS	X	64.12172	0.4518860E-09	64.12172	14.12185
FREDERICKSBURG	BIAS	Y	-57.74587	-.2512802E-08	-57.74587	14.20717
FREDERICKSBURG	BIAS	Z	129.0657	-.2241445E-08	129.0657	19.62831

ARC SET NUMBER 50:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FUQUENE	BIAS	X	129.6246	-.2688602E-08	129.6246	16.00894
FUQUENE	BIAS	Y	-59.86714	0.2224725E-08	-59.86714	16.14948
FUQUENE	BIAS	Z	74.50751	-.1446109E-08	74.50751	20.54785

ARC SET NUMBER 51:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

FURSTNFELDBRUCK	BIAS	X	-9.202618	0.2114268E-08	-9.202618	13.01273
FURSTNFELDBRUCK	BIAS	Y	5.675978	0.1319406E-08	5.675978	12.95855
FURSTNFELDBRUCK	BIAS	Z	4.952030	-.9167677E-09	4.952030	18.25379

ARC SET NUMBER 52:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GNANGARA	BIAS	X	-1.197757	0.2789018E-08	-1.197757	15.89557
GNANGARA	BIAS	Y	-131.0229	0.2610912E-09	-131.0229	15.83883
GNANGARA	BIAS	Z	139.9875	-.3009973E-08	139.9875	20.71323

ARC SET NUMBER 53:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GODHAVN II	BIAS	X	275.0047	0.1866760E-08	275.0047	14.11649
GODHAVN II	BIAS	Y	-309.1751	-.1397055E-08	-309.1751	14.01951
GODHAVN II	BIAS	Z	703.9546	-.1295714E-08	703.9546	19.33246

ARC SET NUMBER 54:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GORNOTAYEZHN II	BIAS	X	11.46441	0.4707979E-09	11.46441	13.33383
GORNOTAYEZHN II	BIAS	Y	-19.11633	-.1382458E-08	-19.11633	13.33688
GORNOTAYEZHN II	BIAS	Z	-79.09582	0.9557795E-09	-79.09582	18.65208

ARC SET NUMBER 55:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE R	BIAS	X	263.3552	-.8375645E-09	263.3552	14.48327
GREAT WHALE R	BIAS	Y	94.85540	-.2851722E-08	94.85540	14.53816
GREAT WHALE R	BIAS	Z	-75.03405	-.1155434E-08	-75.03405	19.52484

ARC SET NUMBER 56:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE RII	BIAS	X	138.9204	-.3304007E-08	138.9204	19.26892
GREAT WHALE RII	BIAS	Y	364.7454	-.9527485E-08	364.7454	19.68324
GREAT WHALE RII	BIAS	Z	-50.18163	-.4252713E-08	-50.18163	25.09174

ARC SET NUMBER 57:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GROCKA	BIAS	X	-21.77230	0.3846723E-08	-21.77230	13.33164
GROCKA	BIAS	Y	-46.88294	0.2951718E-08	-46.88294	13.24042
GROCKA	BIAS	Z	-63.86398	0.1082265E-08	-63.86398	18.44631

ARC SET NUMBER 58:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUAM	BIAS	X	152.2470	0.7236458E-09	152.2470	14.25365
GUAM	BIAS	Y	94.75802	0.2470530E-08	94.75802	15.60426
GUAM	BIAS	Z	58.55212	0.4386555E-08	58.55212	20.28052

ARC SET NUMBER 59:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUANGZHOU II	BIAS	X	72.11175	0.1332625E-08	72.11175	14.86914
GUANGZHOU II	BIAS	Y	65.41272	0.5412403E-08	65.41272	14.81798
GUANGZHOU II	BIAS	Z	6.012930	0.1934281E-08	6.012930	20.02088

ARC SET NUMBER 60:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTEBEESTHOEK	BIAS	X	98.13559	-.5082563E-09	98.13559	15.25967
HARTEBEESTHOEK	BIAS	Y	-13.52339	-.3831850E-08	-13.52339	15.33082
HARTEBEESTHOEK	BIAS	Z	73.48069	-.3353133E-08	73.48069	20.29244

ARC SET NUMBER 61:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTLAND	BIAS	X	-29.95792	0.1116372E-08	-29.95792	13.55665
HARTLAND	BIAS	Y	8.654805	-.1107914E-08	8.654805	13.60495
HARTLAND	BIAS	Z	43.63907	-.3044192E-09	43.63907	18.70254

ARC SET NUMBER 62:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HATIZYO II	BIAS	X	6.109557	0.1443833E-08	6.109557	14.46090
HATIZYO II	BIAS	Y	-789.9474	0.3863005E-08	-789.9474	14.72049
HATIZYO II	BIAS	Z	414.5458	-.1021798E-10	414.5458	19.55784

ARC SET NUMBER 63:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEISS ISLAND II	BIAS	X	92.41947	-.1208020E-08	92.41947	13.64408
HEISS ISLAND II	BIAS	Y	-674.5926	-.5741359E-09	-674.5926	13.58669
HEISS ISLAND II	BIAS	Z	1149.353	0.9749614E-09	1149.353	19.12513

ARC SET NUMBER 64:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEL III	BIAS	X	53.39263	0.5620522E-09	53.39263	13.17139
HEL III	BIAS	Y	-161.3171	0.2421968E-08	-161.3171	13.17242
HEL III	BIAS	Z	-94.42573	-.6373761E-09	-94.42573	18.41014

ARC SET NUMBER 65:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HERMANUS	BIAS	X	17.34403	0.2938763E-08	17.34403	14.72747
HERMANUS	BIAS	Y	16.64196	-.9266270E-08	16.64196	15.13832
HERMANUS	BIAS	Z	23.58200	-.5213906E-08	23.58200	20.05551

ARC SET NUMBER 66:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HONOLULU IV	BIAS	X	-142.2822	-.2559318E-08	-142.2822	15.59108
HONOLULU IV	BIAS	Y	90.04004	-.8467094E-08	90.04004	15.84270
HONOLULU IV	BIAS	Z	-341.3857	-.7691859E-09	-341.3857	20.61808

ARC SET NUMBER 67:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HORNSUND	BIAS	X	-16.03134	0.7032110E-09	-16.03134	15.10921
HORNSUND	BIAS	Y	-130.6312	0.5804098E-09	-130.6312	15.11756
HORNSUND	BIAS	Z	-19.16619	0.7685014E-09	-19.16619	19.88429

ARC SET NUMBER 68:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HUANCAYO	BIAS	X	87.83442	-.2349600E-09	87.83442	15.38228

HUANCAYO	BIAS	Y	48.36056	0.1198989E-07	48.36056	15.95071
HUANCAYO	BIAS	Z	9.255350	0.4898845E-08	9.255350	20.76515

ARC SET NUMBER 69:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HURBANOVO	BIAS	X	20.68431	0.1942499E-08	20.68431	13.47667
HURBANOVO	BIAS	Y	-14.87756	0.2233894E-08	-14.87756	13.44567
HURBANOVO	BIAS	Z	-58.82250	0.5446121E-09	-58.82250	18.55464

ARC SET NUMBER 70:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HYDERABAD	BIAS	X	311.1500	0.7132834E-10	311.1500	14.09683
HYDERABAD	BIAS	Y	17.47365	0.2043846E-08	17.47365	14.24052
HYDERABAD	BIAS	Z	491.6270	0.1028836E-08	491.6270	19.12819

ARC SET NUMBER 71:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
JAIPUR	BIAS	X	173.5258	0.4951390E-09	173.5258	13.69137
JAIPUR	BIAS	Y	-411.3098	0.2227197E-08	-411.3098	13.90793
JAIPUR	BIAS	Z	-33.58163	0.1128774E-08	-33.58163	19.01247

ARC SET NUMBER 72:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KAKIOKA II	BIAS	X	3.252572	0.5622608E-09	3.252572	13.10483
KAKIOKA II	BIAS	Y	12.07748	0.2643986E-08	12.07748	13.32734
KAKIOKA II	BIAS	Z	-92.31006	0.1421751E-09	-92.31006	18.51579

ARC SET NUMBER 73:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOYA	BIAS	X	0.9592561	0.3945764E-08	0.9592561	13.22643
KANOYA	BIAS	Y	45.27409	-.3032771E-08	45.27409	13.10957
KANOYA	BIAS	Z	-43.92797	-.2635545E-08	-43.92797	18.69946

ARC SET NUMBER 74:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOZAN	BIAS	X	-39.45723	0.6198012E-09	-39.45723	13.60217
KANOZAN	BIAS	Y	33.81058	0.1888498E-08	33.81058	13.69534
KANOZAN	BIAS	Z	-75.82296	0.9360307E-10	-75.82296	18.70321

ARC SET NUMBER 75:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KIRUNA II	BIAS	X	-819.7977	0.3853193E-09	-819.7977	17.58076
KIRUNA II	BIAS	Y	-1825.293	0.5068451E-09	-1825.293	17.58273
KIRUNA II	BIAS	Z	-43.94989	0.2541508E-09	-43.94989	21.75146

ARC SET NUMBER 76:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KLYUCHI II	BIAS	X	199.8189	0.4768781E-09	199.8189	14.07473
KLYUCHI II	BIAS	Y	-92.85553	-.1812915E-08	-92.85553	14.06138
KLYUCHI II	BIAS	Z	-30.05773	0.1578073E-08	-30.05773	19.29434

ARC SET NUMBER 77:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-554.0800	0.1803382E-09	-554.0800	14.33896
KODAIKANAL II	BIAS	Y	272.4394	0.3225793E-08	272.4394	14.45691
KODAIKANAL II	BIAS	Z	-71.69114	-.5645599E-09	-71.69114	19.17116

ARC SET NUMBER 78:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	169.1081	0.6219716E-09	169.1081	13.61894
KRASNAYA PAKHRA	BIAS	Y	-13.94363	0.1003691E-08	-13.94363	13.58496
KRASNAYA PAKHRA	BIAS	Z	178.0492	0.5108011E-09	178.0492	18.79599

ARC SET NUMBER 79:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS	X	9.581490	0.1346774E-08	9.581490	14.43433
LANZHOU II	BIAS	Y	10.61755	0.3422607E-08	10.61755	14.25059
LANZHOU II	BIAS	Z	-54.36713	-.4951126E-08	-54.36713	20.06352

ARC SET NUMBER 80:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS	X	-282.3432	0.1955191E-09	-282.3432	13.66567
LEIRVOGUR	BIAS	Y	591.0725	-.1072743E-08	591.0725	13.63626
LEIRVOGUR	BIAS	Z	-496.7213	-.2167858E-08	-496.7213	19.18536

ARC SET NUMBER 81:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS	X	-118.5951	0.9783675E-09	-118.5951	13.56179
LERWICK II	BIAS	Y	168.0051	-.6248664E-09	168.0051	13.59509
LERWICK II	BIAS	Z	27.00636	-.2436483E-08	27.00636	18.77777

ARC SET NUMBER 82:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOPARSKOYE	BIAS	X	109.9321	0.2115150E-09	109.9321	17.58192
LOPARSKOYE	BIAS	Y	336.4239	0.4461560E-09	336.4239	17.58409
LOPARSKOYE	BIAS	Z	-553.7385	0.6165372E-09	-553.7385	21.75619

ARC SET NUMBER 83:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOVO	BIAS	X	54.85168	0.5355787E-09	54.85168	15.02972
LOVO	BIAS	Y	-1.773252	0.1087436E-08	-1.773252	15.03332
LOVO	BIAS	Z	-3.065164	-.6528784E-09	-3.065164	19.74183

ARC SET NUMBER 84:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS	X	287.5461	-.9814695E-08	287.5461	16.60865
LUANDA BELAS I	BIAS	Y	-31.20106	0.9885871E-07	-31.20106	18.16148
LUANDA BELAS I	BIAS	Z	90.98904	-.2996043E-07	90.98904	22.65448

ARC SET NUMBER 85:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS	X	27.87087	0.8275896E-09	27.87087	14.07325
LUNPING	BIAS	Y	29.11102	-.1801533E-08	29.11102	14.09812

LUNPING	BIAS	Z	34.06422	0.2194546E-08	34.06422	19.10623

ARC SET NUMBER 86:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LVOV	BIAS	X	163.2886	0.9471013E-09	163.2886	13.47812
LVOV	BIAS	Y	124.7961	0.2496306E-08	124.7961	13.46318
LVOV	BIAS	Z	146.7900	0.1573059E-08	146.7900	18.58025

ARC SET NUMBER 87:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
M BOUR	BIAS	X	116.4619	0.6726147E-08	116.4619	15.09990
M BOUR	BIAS	Y	37.77762	-.3945673E-07	37.77762	15.52203
M BOUR	BIAS	Z	38.25178	0.2266359E-08	38.25178	20.29970

ARC SET NUMBER 88:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MACQUARIE ISLND	BIAS	X	272.8621	0.2644853E-08	272.8621	14.32883
MACQUARIE ISLND	BIAS	Y	7.603872	0.4934470E-09	7.603872	14.72852
MACQUARIE ISLND	BIAS	Z	303.5417	0.3986956E-09	303.5417	19.99523

ARC SET NUMBER 89:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MANHAY II	BIAS	X	9.412067	0.1582380E-08	9.412067	17.81045
MANHAY II	BIAS	Y	-18.54165	0.2489220E-09	-18.54165	17.79500
MANHAY II	BIAS	Z	165.4288	-.1831147E-08	165.4288	21.99541

ARC SET NUMBER 90:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAPUTO II	BIAS	X	366.5352	-.3730969E-08	366.5352	14.68526
MAPUTO II	BIAS	Y	32.70612	0.2810568E-08	32.70612	14.80044
MAPUTO II	BIAS	Z	-137.9440	-.8959026E-08	-137.9440	19.87695

ARC SET NUMBER 91:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MARTIN VIVIES	BIAS	X	-616.0713	-.6133089E-08	-616.0713	18.38069
MARTIN VIVIES	BIAS	Y	-643.7616	0.1220229E-07	-643.7616	18.69140
MARTIN VIVIES	BIAS	Z	-1951.270	-.8144110E-08	-1951.270	23.91481

ARC SET NUMBER 92:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAWSON	BIAS	X	16.49774	-.4509743E-09	16.49774	13.94630
MAWSON	BIAS	Y	19.40256	-.1468221E-09	19.40256	13.91464
MAWSON	BIAS	Z	193.4758	-.1438248E-08	193.4758	19.34687

ARC SET NUMBER 93:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEANOOK III	BIAS	X	109.9873	-.1664975E-08	109.9873	13.49064
MEANOOK III	BIAS	Y	12.33989	0.7230902E-09	12.33989	13.59920
MEANOOK III	BIAS	Z	-133.0922	-.1371482E-08	-133.0922	18.91262

ARC SET NUMBER 94:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

MEMAMBETSU	BIAS	X	-228.6471	-.8559001E-09	-228.6471	13.24908
MEMAMBETSU	BIAS	Y	141.9743	0.1164251E-09	141.9743	13.53615
MEMAMBETSU	BIAS	Z	62.84261	-.8536319E-09	62.84261	18.73477

ARC SET NUMBER 95:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIRNYY III	BIAS	X	-120.4779	0.2610537E-08	-120.4779	14.43189
MIRNYY III	BIAS	Y	54.95075	0.1977629E-08	54.95075	14.12717
MIRNYY III	BIAS	Z	-435.0903	0.5937188E-09	-435.0903	19.64872

ARC SET NUMBER 96:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIZUSAWA	BIAS	X	-128.5441	-.7517127E-10	-128.5441	13.60276
MIZUSAWA	BIAS	Y	43.40032	0.9732459E-09	43.40032	13.68227
MIZUSAWA	BIAS	Z	-187.4316	0.7092185E-10	-187.4316	18.70531

ARC SET NUMBER 97:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOLODEZHNAYA	BIAS	X	-9.242961	-.8069713E-09	-9.242961	14.38744
MOLODEZHNAYA	BIAS	Y	-107.5029	-.3970043E-09	-107.5029	14.31644
MOLODEZHNAYA	BIAS	Z	-240.1620	0.1811497E-08	-240.1620	19.46084

ARC SET NUMBER 98:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOULD BAY	BIAS	X	-28.26147	-.1452946E-08	-28.26147	13.57558
MOULD BAY	BIAS	Y	11.39080	0.9937409E-09	11.39080	13.55257
MOULD BAY	BIAS	Z	-37.44078	-.6405385E-10	-37.44078	19.03698

ARC SET NUMBER 99:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MUNTINLUPA	BIAS	X	-66.53894	-.2502298E-08	-66.53894	14.74788
MUNTINLUPA	BIAS	Y	-39.08308	-.1482474E-08	-39.08308	14.75279
MUNTINLUPA	BIAS	Z	29.87349	0.3136324E-08	29.87349	19.87120

ARC SET NUMBER 100:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAGYCENK II	BIAS	X	3.394407	0.1707945E-08	3.394407	17.61898
NAGYCENK II	BIAS	Y	-2.232761	0.1673452E-08	-2.232761	17.60091
NAGYCENK II	BIAS	Z	-84.34279	0.2055376E-09	-84.34279	21.73923

ARC SET NUMBER 101:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAMPULA	BIAS	X	-49.31215	-.1089473E-07	-49.31215	18.94722
NAMPULA	BIAS	Y	27.86415	0.2022523E-07	27.86415	20.37481
NAMPULA	BIAS	Z	294.6273	-.2778669E-07	294.6273	26.41819

ARC SET NUMBER 102:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NARSSARSSUAQ	BIAS	X	-344.9884	-.7898268E-09	-344.9884	15.31570
NARSSARSSUAQ	BIAS	Y	266.6634	0.2430401E-09	266.6634	15.24732
NARSSARSSUAQ	BIAS	Z	558.5475	-.2290490E-08	558.5475	20.25663

ARC SET NUMBER 103:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NEWPORT	BIAS	X	-26.77082	-.2634806E-08	-26.77082	13.15519
NEWPORT	BIAS	Y	107.0767	-.1503444E-08	107.0767	13.28656
NEWPORT	BIAS	Z	-107.1209	-.1034717E-08	-107.1209	18.55724

ARC SET NUMBER 104:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NIEMEGK	BIAS	X	-20.08427	0.1141811E-08	-20.08427	13.16900
NIEMEGK	BIAS	Y	2.300528	0.1746024E-08	2.300528	13.15797
NIEMEGK	BIAS	Z	-87.08601	-.1133370E-08	-87.08601	18.38367

ARC SET NUMBER 105:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVO KAZALINSK	BIAS	X	-96.28732	0.1960806E-08	-96.28732	13.56655
NOVO KAZALINSK	BIAS	Y	-165.5775	0.2742674E-08	-165.5775	13.51985
NOVO KAZALINSK	BIAS	Z	-.5250871	-.2912858E-08	-.5250871	18.94020

ARC SET NUMBER 106:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVOLAZAREVS II	BIAS	X	-258.7580	-.1238467E-10	-258.7580	20.18131
NOVOLAZAREVS II	BIAS	Y	80.87260	0.1475107E-08	80.87260	20.13204
NOVOLAZAREVS II	BIAS	Z	83.17629	0.8755205E-09	83.17629	21.95140

ARC SET NUMBER 107:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NURMIJARVI	BIAS	X	295.0673	0.1092345E-08	295.0673	14.79238
NURMIJARVI	BIAS	Y	-107.0716	0.2558650E-08	-107.0716	14.80895
NURMIJARVI	BIAS	Z	95.00142	-.1138698E-08	95.00142	18.79345

ARC SET NUMBER 108:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
OTTAWA	BIAS	X	148.5038	-.2508696E-08	148.5038	13.89036
OTTAWA	BIAS	Y	-142.3147	-.2604032E-08	-142.3147	13.97337
OTTAWA	BIAS	Z	160.9261	-.1916958E-08	160.9261	19.36961

ARC SET NUMBER 109:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PAMATAI II	BIAS	X	-648.1452	-.2242032E-08	-648.1452	15.60941
PAMATAI II	BIAS	Y	-740.8221	0.5450719E-08	-740.8221	15.43906
PAMATAI II	BIAS	Z	-93.73124	0.1516879E-08	-93.73124	20.54773

ARC SET NUMBER 110:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PANAGYURISHTE	BIAS	X	-177.8006	0.2145303E-08	-177.8006	15.01788
PANAGYURISHTE	BIAS	Y	-168.5334	0.1554369E-08	-168.5334	14.99946
PANAGYURISHTE	BIAS	Z	-201.2838	0.7325522E-09	-201.2838	19.65918

ARC SET NUMBER 111:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

PARATUNKA	BIAS	X	-331.8946	0.1443549E-08	-331.8946	14.19380
PARATUNKA	BIAS	Y	225.1825	-.5173457E-09	225.1825	14.34911
PARATUNKA	BIAS	Z	236.2177	-.1780147E-08	236.2177	19.53119

ARC SET NUMBER 112:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PATRONY	BIAS	X	35.26234	0.8174823E-09	35.26234	14.19909
PATRONY	BIAS	Y	41.62253	0.6046468E-09	41.62253	14.22553
PATRONY	BIAS	Z	-81.40887	-.3216286E-08	-81.40887	19.58961

ARC SET NUMBER 113:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PILAR	BIAS	X	17.28827	-.8368607E-09	17.28827	15.51470
PILAR	BIAS	Y	-.9845608	-.7686071E-08	-.9845608	15.70559
PILAR	BIAS	Z	-13.15175	0.1198725E-07	-13.15175	20.69872

ARC SET NUMBER 114:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PLESHENITZI	BIAS	X	291.0049	0.9732501E-10	291.0049	13.49046
PLESHENITZI	BIAS	Y	169.4261	0.1868756E-08	169.4261	13.48620
PLESHENITZI	BIAS	Z	-137.8111	0.7131895E-09	-137.8111	18.63152

ARC SET NUMBER 115:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PODKAM TUNGUSKA	BIAS	X	75.91518	0.1152173E-08	75.91518	14.45097
PODKAM TUNGUSKA	BIAS	Y	8.485465	-.3058010E-08	8.485465	14.51323
PODKAM TUNGUSKA	BIAS	Z	-288.8750	0.3483859E-09	-288.8750	20.02367

ARC SET NUMBER 116:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT MORESBY	BIAS	X	17.85324	-.4668172E-09	17.85324	14.88932
PORT MORESBY	BIAS	Y	59.23442	0.2450153E-08	59.23442	16.12203
PORT MORESBY	BIAS	Z	263.9403	-.1201997E-08	263.9403	20.60616

ARC SET NUMBER 117:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-ALFRED I	BIAS	X	-803.0486	0.1035370E-07	-803.0486	16.97062
PORT-ALFRED I	BIAS	Y	1104.298	0.5822691E-08	1104.298	16.58453
PORT-ALFRED I	BIAS	Z	171.2463	0.1368024E-07	171.2463	23.14314

ARC SET NUMBER 118:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-AUX-FRANCA	BIAS	X	228.3762	0.4836516E-09	228.3762	14.36122
PORT-AUX-FRANCA	BIAS	Y	194.8722	0.8665068E-09	194.8722	14.73236
PORT-AUX-FRANCA	BIAS	Z	676.9132	-.3520136E-08	676.9132	19.98690

ARC SET NUMBER 119:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RESOLUTE BAY	BIAS	X	39.54177	-.1486729E-08	39.54177	13.57297
RESOLUTE BAY	BIAS	Y	31.45754	-.2317827E-09	31.45754	13.60322
RESOLUTE BAY	BIAS	Z	70.25143	0.1838526E-08	70.25143	19.02786

ARC SET NUMBER 120:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RUDE SKOV	BIAS	X	41.33654	0.4674415E-09	41.33654	16.02280
RUDE SKOV	BIAS	Y	-8.173670	0.8068788E-09	-8.173670	16.02393
RUDE SKOV	BIAS	Z	-58.40167	-.7923106E-09	-58.40167	20.49220

ARC SET NUMBER 121:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SABHAWALA II	BIAS	X	-7.305737	0.3237110E-09	-7.305737	13.69792
SABHAWALA II	BIAS	Y	-69.11955	0.1482441E-08	-69.11955	13.85899
SABHAWALA II	BIAS	Z	23.34866	0.2886227E-08	23.34866	19.06165

ARC SET NUMBER 122:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN JUAN II	BIAS	X	-45.67957	-.3890811E-08	-45.67957	14.82409
SAN JUAN II	BIAS	Y	181.5930	0.8592110E-08	181.5930	15.39317
SAN JUAN II	BIAS	Z	185.6818	0.4996582E-08	185.6818	20.38020

ARC SET NUMBER 123:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN PABLO	BIAS	X	31.42513	-.1389721E-09	31.42513	15.55577
SAN PABLO	BIAS	Y	15.56916	0.2119850E-08	15.56916	15.57212
SAN PABLO	BIAS	Z	-76.26056	0.4451594E-08	-76.26056	20.33225

ARC SET NUMBER 124:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SANAE II	BIAS	X	-45.25111	-.2251558E-[illegible]	-45.25111	16.67578
SANAE II	BIAS	Y	-71.00211	0.8325521E-08	-71.00211	15.57975
SANAE II	BIAS	Z	44.43064	-.2569843E-08	44.43064	21.70763

ARC SET NUMBER 125:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHESHAN	BIAS	X	-226.2941	0.8993773E-09	-226.2941	13.97650
SHESHAN	BIAS	Y	72.50436	-.1083351E-08	72.50436	13.97997
SHESHAN	BIAS	Z	226.8455	0.3049638E-08	226.8455	19.02356

ARC SET NUMBER 126:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHILLONG	BIAS	X	-95.67749	0.7706701E-09	-95.67749	15.11983
SHILLONG	BIAS	Y	-87.89350	-.5626976E-08	-87.89350	14.81842
SHILLONG	BIAS	Z	-372.3795	-.2522702E-08	-372.3795	20.20892

ARC SET NUMBER 127:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SITKA III	BIAS	X	8.498204	-.2574262E-08	8.498204	14.69597
SITKA III	BIAS	Y	-10.35211	0.7215173E-09	-10.35211	14.71583
SITKA III	BIAS	Z	-53.66266	0.4082696E-09	-53.66266	19.90225

ARC SET NUMBER 128:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SODANKYLA	BIAS	X	-149.5973	0.2213870E-08	-149.5973	13.34269

SODANKYLA	BIAS	Y	-107.9376	0.2771024E-08	-107.9376	13.39019
SODANKYLA	BIAS	Z	-590.5206	-.1137796E-09	-590.5206	18.71655

ARC SET NUMBER 129:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SOUTH GEORGIA	BIAS	X	-74.43233	0.1335417E-09	-74.43233	17.58895
SOUTH GEORGIA	BIAS	Y	-366.1210	-.5201545E-09	-366.1210	17.60104
SOUTH GEORGIA	BIAS	Z	104.1975	-.4671950E-08	104.1975	21.78679

ARC SET NUMBER 130:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ST JOHN S	BIAS	X	60.68180	-.5758449E-08	60.68180	14.68485
ST JOHN S	BIAS	Y	24.36334	-.3278381E-09	24.36334	14.34875
ST JOHN S	BIAS	Z	-1.451861	0.6151799E-08	-1.451861	20.00613

ARC SET NUMBER 131:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEKOLINIY	BIAS	X	-267.7853	0.2438410E-08	-267.7853	14.48190
STEKOLINIY	BIAS	Y	-738.8407	-.3432166E-09	-738.8407	14.70540
STEKOLINIY	BIAS	Z	42.54451	0.1830593E-08	42.54451	20.08971

ARC SET NUMBER 132:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEPANOVKA III	BIAS	X	-96.98143	0.1047125E-08	-96.98143	13.57031
STEPANOVKA III	BIAS	Y	-700.7272	0.2020637E-08	-700.7272	13.52927
STEPANOVKA III	BIAS	Z	70.08687	0.3148078E-08	70.08687	18.67855

ARC SET NUMBER 133:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SURLARI II	BIAS	X	21.98605	0.3211001E-08	21.98605	13.35405
SURLARI II	BIAS	Y	-32.32560	0.3493718E-08	-32.32560	13.28075
SURLARI II	BIAS	Z	-63.74058	0.2812458E-08	-63.74058	18.49965

ARC SET NUMBER 134:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SYOWA BASE II	BIAS	X	-30.14879	-.7487849E-09	-30.14879	15.27062
SYOWA BASE II	BIAS	Y	-58.06652	-.2015728E-09	-58.06652	15.07187
SYOWA BASE II	BIAS	Z	18.39064	0.3381318E-08	18.39064	20.19632

ARC SET NUMBER 135:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TAMANRASSET IV	BIAS	X	50.80927	0.1625624E-07	50.80927	15.82073
TAMANRASSET IV	BIAS	Y	-239.3388	0.1005254E-08	-239.3388	15.74865
TAMANRASSET IV	BIAS	Z	-33.92163	0.1129991E-07	-33.92163	21.19891

ARC SET NUMBER 136:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TANGERANG III	BIAS	X	16.93484	-.1232236E-08	16.93484	15.54824
TANGERANG III	BIAS	Y	-36.28560	0.1841499E-08	-36.28560	16.00073
TANGERANG III	BIAS	Z	89.00674	-.6009489E-08	89.00674	20.98835

ARC SET NUMBER 137:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TATUOCA III	BIAS	X	55.66779	-.1005224E-07	55.66779	17.19786
TATUOCA III	BIAS	Y	-97.16454	0.1412535E-07	-97.16454	17.66388
TATUOCA III	BIAS	Z	66.10197	-.9637074E-08	66.10197	22.33478

ARC SET NUMBER 138:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE	BIAS	X	-279.0472	0.1663135E-09	-279.0472	15.33446
THULE	BIAS	Y	228.4245	-.1311156E-08	228.4245	15.27172
THULE	BIAS	Z	-66.91165	0.1319553E-08	-66.91165	20.17601

ARC SET NUMBER 139:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE III	BIAS	X	-53.55559	-.3864357E-10	-53.55559	14.64082
THULE III	BIAS	Y	92.22267	-.1133476E-08	92.22267	14.57660
THULE III	BIAS	Z	24.25536	0.1333617E-08	24.25536	19.65679

ARC SET NUMBER 140:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIHANY II	BIAS	X	-12.69739	0.2419082E-08	-12.69739	14.44684
TIHANY II	BIAS	Y	6.237147	0.2263410E-08	6.237147	14.40431
TIHANY II	BIAS	Z	-50.49117	0.4999106E-09	-50.49117	20.42207

ARC SET NUMBER 141:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIKSI VI	BIAS	X	-67.63764	-.6939643E-09	-67.63764	14.89386
TIKSI VI	BIAS	Y	-155.8944	0.1663073E-08	-155.8944	14.88955
TIKSI VI	BIAS	Z	-109.6947	-.1061354E-09	-109.6947	20.15195

ARC SET NUMBER 142:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TOLEDO III	BIAS	X	16.04076	0.1897407E-09	16.04076	17.51367
TOLEDO III	BIAS	Y	4.193804	0.3183852E-09	4.193804	17.51440
TOLEDO III	BIAS	Z	-12.82301	0.6984249E-09	-12.82301	21.61763

ARC SET NUMBER 143:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TRIVANDRUM	BIAS	X	284.6315	0.4652245E-09	284.6315	14.47619
TRIVANDRUM	BIAS	Y	199.6250	0.4089175E-08	199.6250	14.65055
TRIVANDRUM	BIAS	Z	205.3439	-.1520263E-08	205.3439	19.30605

ARC SET NUMBER 144:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TROMSO	BIAS	X	122.9598	0.2699474E-08	122.9598	13.37835
TROMSO	BIAS	Y	-407.1350	0.2269748E-08	-407.1350	13.43257
TROMSO	BIAS	Z	114.6386	-.4614320E-09	114.6386	18.77563

ARC SET NUMBER 145:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TSUMEB	BIAS	X	65.63972	-.1382329E-07	65.63972	14.28724
TSUMEB	BIAS	Y	-50.12233	0.3227990E-07	-50.12233	14.93222

TSUMEB	BIAS	Z	96.43210	0.1631957E-07	96.43210	19.84680

ARC SET NUMBER 146:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TUCSON	BIAS	X	-42.44729	-.1000203E-09	-42.44729	14.07547
TUCSON	BIAS	Y	-59.23330	0.3363503E-11	-59.23330	14.19573
TUCSON	BIAS	Z	138.2434	-.4506960E-08	138.2434	19.27801

ARC SET NUMBER 147:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TULSA II	BIAS	X	-25.43944	-.5267010E-08	-25.43944	31.02809
TULSA II	BIAS	Y	-34.94862	0.7898810E-09	-34.94862	30.72826
TULSA II	BIAS	Z	46.28156	0.9999072E-08	46.28156	34.05879

ARC SET NUMBER 148:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
UJJAIN	BIAS	X	-226.4210	0.2397789E-09	-226.4210	17.48961
UJJAIN	BIAS	Y	181.6019	0.2840607E-09	181.6019	17.49983
UJJAIN	BIAS	Z	278.1480	0.8149977E-10	278.1480	21.57094

ARC SET NUMBER 149:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
URUMQI	BIAS	X	-45.74146	0.4781145E-10	-45.74146	15.29220
URUMQI	BIAS	Y	-12.55171	-.2836164E-08	-12.55171	15.25602
URUMQI	BIAS	Z	50.86952	0.5450044E-09	50.86952	20.23143

ARC SET NUMBER 150:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VALENTIA	BIAS	X	138.7934	0.1842306E-08	138.7934	13.33306
VALENTIA	BIAS	Y	-58.53640	-.2182219E-08	-58.53640	13.46451
VALENTIA	BIAS	Z	13.02890	0.8204661E-09	13.02890	18.74480

ARC SET NUMBER 151:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VANNOVSKAYA II	BIAS	X	191.2381	-.1597513E-08	191.2381	14.01934
VANNOVSKAYA II	BIAS	Y	94.52965	-.7615137E-09	94.52965	13.83329
VANNOVSKAYA II	BIAS	Z	69.23974	-.4221133E-08	69.23974	19.21986

ARC SET NUMBER 152:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VASSOURAS	BIAS	X	88.63752	0.2059596E-07	88.63752	15.35609
VASSOURAS	BIAS	Y	-62.24971	0.4129162E-07	-62.24971	15.77252
VASSOURAS	BIAS	Z	-35.88907	-.1702310E-07	-35.88907	20.76833

ARC SET NUMBER 153:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VICTORIA	BIAS	X	40.96192	-.4863621E-08	40.96192	13.85909
VICTORIA	BIAS	Y	2.415060	-.2443176E-08	2.415060	13.99678
VICTORIA	BIAS	Z	-305.0039	0.1055811E-08	-305.0039	19.20019

ARC SET NUMBER 154:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOSTOK	BIAS	X	35.05255	0.9241708E-09	35.05255	14.96635
VOSTOK	BIAS	Y	62.84227	0.3007612E-08	62.84227	14.61570
VOSTOK	BIAS	Z	17.72883	-.7075168E-09	17.72883	20.20939

ARC SET NUMBER 155:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOYEYKOVO	BIAS	X	95.24394	0.7312289E-09	95.24394	13.87438
VOYEYKOVO	BIAS	Y	16.48514	0.1682666E-08	16.48514	13.88121
VOYEYKOVO	BIAS	Z	-277.2537	-.1659946E-10	-277.2537	18.93000

ARC SET NUMBER 156:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WIEN KOBENZL	BIAS	X	34.48208	0.2101803E-08	34.48208	13.20231
WIEN KOBENZL	BIAS	Y	-.5663785	0.2284399E-08	-.5663785	13.16285
WIEN KOBENZL	BIAS	Z	9.088434	0.1274251E-09	9.088434	18.36944

ARC SET NUMBER 157:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WINGST	BIAS	X	63.85657	0.9245554E-09	63.85657	13.47180
WINGST	BIAS	Y	45.77317	0.9443810E-09	45.77317	13.47002
WINGST	BIAS	Z	-78.37529	-.1692804E-08	-78.37529	18.60823

ARC SET NUMBER 158:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WITTEVEEN	BIAS	X	36.15074	0.1080803E-08	36.15074	13.19565
WITTEVEEN	BIAS	Y	2.961743	0.5167943E-09	2.961743	13.19373
WITTEVEEN	BIAS	Z	-85.50643	-.1854776E-08	-85.50643	18.42445

ARC SET NUMBER 159:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WUHAN	BIAS	X	63.63717	0.7446078E-09	63.63717	14.43105
WUHAN	BIAS	Y	28.95287	0.3741138E-08	28.95287	14.40924
WUHAN	BIAS	Z	-57.05799	0.3772399E-08	-57.05799	19.63113

ARC SET NUMBER 160:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YAKUTSK II	BIAS	X	94.29704	0.2338368E-09	94.29704	14.09580
YAKUTSK II	BIAS	Y	-1177.419	0.1360040E-08	-1177.419	14.15084
YAKUTSK II	BIAS	Z	97.85112	0.1000179E-08	97.85112	19.43865

ARC SET NUMBER 161:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR	BIAS	X	-265.8258	0.2000692E-09	-265.8258	17.51421
YANGI-BAZAR	BIAS	Y	40.11301	0.4805090E-09	40.11301	17.51725
YANGI-BAZAR	BIAS	Z	-110.2047	0.9854905E-10	-110.2047	21.61534

ARC SET NUMBER 162:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR II	BIAS	X	-259.8014	0.1114322E-08	-259.8014	15.40862
YANGI-BAZAR II	BIAS	Y	43.58162	0.5707374E-08	43.58162	15.48740
YANGI-BAZAR II	BIAS	Z	-70.58648	-.4935136E-09	-70.58648	20.79091

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ARC SET NUMBER 163:
         LABEL                   OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------    ------------    --------------
YELLOW-KNIFE      BIAS  X       403.3531      -.7747281E-09     403.3531        13.66642
YELLOW-KNIFE      BIAS  Y      -210.7978      0.9508863E-09    -210.7978        13.71047
YELLOW-KNIFE      BIAS  Z       142.6577      -.2229118E-09     142.6577        18.97301

ARC SET NUMBER 164:
         LABEL                   OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------    ------------    --------------
YUZHNO SAKH IV    BIAS  X      -74.25771      0.2560032E-09    -74.25771        14.40020
YUZHNO SAKH IV    BIAS  Y      -56.95270      -.4711359E-09    -56.95270        14.43878
YUZHNO SAKH IV    BIAS  Z       82.75844      -.4690798E-09     82.75844        19.29187

ARC SET NUMBER 165:
         LABEL                   OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------    ------------    --------------
ZAYMISHCHE III    BIAS  X      -113.0026      0.2296186E-08    -113.0026        13.40744
ZAYMISHCHE III    BIAS  Y      -118.0234      0.1161404E-08    -118.0234        13.35223
ZAYMISHCHE III    BIAS  Z       121.8222      -.3026830E-10     121.8222        18.74036

--LAST ARC-SET PROCESSED.  TOTAL NUMBER OF ARC-SETS EQUALS:   165


 GENERATING COMMON PARAMETER MATRIX STATISTICS:
*** ND =     2IER = 0   ** STATC **

-- In STATC. Input sigmas and matrix from unit 15
GREADO INPUTING RESTART DATA FROM UNIT 15

DIMENSION VARIABLES READ FROM UNIT 15:
   IWIO = 0     INQL= 1   INTMTH= 1  EXTMTH = 0
   PEWP = 67.0    IVLPG = 1
   IWLPG = 1  NMAX =   13   NMEX =     1
   NMINI=  1   NMINE=  1   NCOM =  322
   MA =  3  MW =          0    NTIMI =  120
   NPSNI =     0  NTIME =    0  NPSNE =     0
   NOBS =  196   NSAT =    0   NSRV =   0
   MODEXT flag =  0
READING D MATRIX FROM UNIT 15
```

ITERATION # 3 ARC PARAMETER SOLUTIONS PLUS STATISTICS:

ARC SET NUMBER 1:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ABISKO VI	BIAS	X	28.56128	-.1107559E-07	28.56128	15.06928
ABISKO VI	BIAS	Y	56.96391	0.1727832E-07	56.96391	15.07793
ABISKO VI	BIAS	Z	30.29305	0.2230237E-08	30.29305	19.81241

ARC SET NUMBER 2:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ADDIS ABABA II	BIAS	X	546.2935	-.1192975E-06	546.2935	15.00713
ADDIS ABABA II	BIAS	Y	6.146335	0.2190089E-06	6.146335	15.47833
ADDIS ABABA II	BIAS	Z	120.2679	-.2196520E-06	120.2679	20.70095

ARC SET NUMBER 3:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALERT	BIAS	X	-7.950108	0.5297096E-08	-7.950108	14.19146
ALERT	BIAS	Y	29.19298	-.1034593E-07	29.19298	14.10211
ALERT	BIAS	Z	-189.3319	0.5865122E-08	-189.3319	19.40761

ARC SET NUMBER 4:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALIBAG III	BIAS	X	-204.5610	-.3575683E-06	-204.5610	13.72334
ALIBAG III	BIAS	Y	455.0534	-.2319789E-07	455.0534	14.05204
ALIBAG III	BIAS	Z	604.6696	-.1488384E-06	604.6696	19.02691

ARC SET NUMBER 5:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMA ATA	BIAS	X	162.4638	-.1108096E-06	162.4638	13.77972
ALMA ATA	BIAS	Y	23.20302	-.3226558E-07	23.20301	13.81473
ALMA ATA	BIAS	Z	-176.8670	0.2712647E-07	-176.8670	19.14766

ARC SET NUMBER 6:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMERIA	BIAS	X	-11.36054	0.2699381E-07	-11.36054	13.83908
ALMERIA	BIAS	Y	12.95672	0.3570115E-08	12.95672	13.78060
ALMERIA	BIAS	Z	10.23480	0.2348514E-07	10.23480	18.98465

ARC SET NUMBER 7:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AMATSIA	BIAS	X	110.8854	-.4405431E-07	110.8854	14.11093
AMATSIA	BIAS	Y	34.71665	-.5861768E-07	34.71665	14.26845
AMATSIA	BIAS	Z	280.5716	0.1093906E-06	280.5716	19.50755

ARC SET NUMBER 8:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ANNAMALAINAG II	BIAS	X	151.1867	0.5862139E-08	151.1867	14.53019

ANNAMALAINAG II	BIAS	Y	-105.7970	-.2181338E-06	-105.7970	14.61705
ANNAMALAINAG II	BIAS	Z	-49.07615	-.6439167E-07	-49.07615	19.32299

ARC SET NUMBER 9:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
APIA IV	BIAS	X	-25.92783	0.4272690E-07	-25.92783	15.43633
APIA IV	BIAS	Y	202.9958	-.5308730E-07	202.9958	15.68237
APIA IV	BIAS	Z	-883.8473	-.3247093E-07	-883.8473	20.63772

ARC SET NUMBER 10:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AQUILA	BIAS	X	10.04450	0.1320817E-07	10.04450	13.42901
AQUILA	BIAS	Y	39.55181	0.1249810E-07	39.55181	13.29194
AQUILA	BIAS	Z	-10.16121	-.2805850E-07	-10.16121	18.49973

ARC SET NUMBER 11:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARCTOWSKI	BIAS	X	-147.0730	-.1806975E-07	-147.0730	14.92150
ARCTOWSKI	BIAS	Y	314.8043	-.6993993E-07	314.8043	14.98648
ARCTOWSKI	BIAS	Z	675.0153	-.1719556E-07	675.0153	20.01897

ARC SET NUMBER 12:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARGENTINE ISLND	BIAS	X	87.78820	0.2631656E-07	87.78820	15.29355
ARGENTINE ISLND	BIAS	Y	-78.16935	-.1628468E-07	-78.16935	15.27179
ARGENTINE ISLND	BIAS	Z	477.4317	0.6878055E-08	477.4317	20.22830

ARC SET NUMBER 13:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARTI	BIAS	X	118.1682	-.2659967E-07	118.1682	13.69331
ARTI	BIAS	Y	-264.1590	-.5079058E-08	-264.1590	13.67029
ARTI	BIAS	Z	441.7772	-.4022451E-07	441.7772	18.99193

ARC SET NUMBER 14:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BAKER LAKE VII	BIAS	X	170.6405	0.1542892E-07	170.6405	13.52498
BAKER LAKE VII	BIAS	Y	-34.49104	0.1383635E-07	-34.49104	13.58830
BAKER LAKE VII	BIAS	Z	-77.65103	-.1346035E-07	-77.65103	18.98061

ARC SET NUMBER 15:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BANGUI IV	BIAS	X	-131.4016	0.6009160E-07	-131.4016	14.71966
BANGUI IV	BIAS	Y	-31.06669	0.1701374E-06	-31.06669	29.26314
BANGUI IV	BIAS	Z	210.0928	0.4660405E-07	210.0928	20.37866

ARC SET NUMBER 16:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BARROW IV	BIAS	X	18.99363	0.3447771E-07	18.99363	15.26150
BARROW IV	BIAS	Y	-56.82998	-.3437933E-07	-56.82998	13.96451
BARROW IV	BIAS	Z	-43.38231	0.6446957E-09	-43.38231	19.35920

ARC SET NUMBER 17:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEIJING	BIAS X	627.3682	0.5532219E-07	627.3682	13.76124
BEIJING	BIAS Y	-227.8413	0.4014822E-07	-227.8413	13.75949
BEIJING	BIAS Z	437.5649	0.2773067E-07	437.5649	19.10008

ARC SET NUMBER 18:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BELSK	BIAS X	118.7340	0.1117085E-07	118.7340	13.17101
BELSK	BIAS Y	137.5350	0.3725109E-08	137.5350	13.16291
BELSK	BIAS Z	303.9639	-.1309265E-07	303.9639	18.38283

ARC SET NUMBER 19:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEREZNAYKI III	BIAS X	-394.6846	-.1062044E-06	-394.6846	39.10469
BEREZNAYKI III	BIAS Y	-271.6026	-.1899579E-07	-271.6026	39.10677
BEREZNAYKI III	BIAS Z	245.2343	-.4776021E-07	245.2343	41.44695

ARC SET NUMBER 20:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BJORNOYA II	BIAS X	-98.46734	-.1776170E-07	-98.46734	13.71638
BJORNOYA II	BIAS Y	48.89123	0.4159537E-07	48.89123	13.77498
BJORNOYA II	BIAS Z	26.72495	-.1748525E-07	26.72495	19.06196

ARC SET NUMBER 21:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOROK	BIAS X	-15.86684	0.8803599E-09	-15.86684	13.57523
BOROK	BIAS Y	-68.09706	0.3655582E-08	-68.09706	13.56112
BOROK	BIAS Z	-442.1745	-.4420871E-08	-442.1745	18.76535

ARC SET NUMBER 22:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOULDER	BIAS X	8.163961	0.4809209E-07	8.163961	13.19060
BOULDER	BIAS Y	47.94537	0.6204521E-07	47.94537	13.26347
BOULDER	BIAS Z	-166.9670	0.3064751E-07	-166.9670	18.65372

ARC SET NUMBER 23:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE	BIAS X	78.66675	-.1652274E-08	78.66675	17.57275
BRORFELDE	BIAS Y	-101.9373	0.5276143E-08	-101.9373	17.57371
BRORFELDE	BIAS Z	-207.2755	0.1068842E-07	-207.2755	21.72487

ARC SET NUMBER 24:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE II	BIAS X	72.86929	-.4438101E-08	72.86929	17.80830
BRORFELDE II	BIAS Y	-100.5881	0.1467320E-07	-100.5881	17.81022
BRORFELDE II	BIAS Z	-189.4605	0.3468358E-07	-189.4605	22.05545

ARC SET NUMBER 25:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BUDKOV	BIAS X	-29.96094	0.1034038E-07	-29.96094	13.85725
BUDKOV	BIAS Y	-13.45121	-.2728504E-08	-13.45121	13.83621

BUDKOV	BIAS	Z	-41.81523	-.9128074E-09	-41.81523	18.83567

ARC SET NUMBER 26:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAMBRIDGE BAY	BIAS	X	107.7358	0.2427116E-07	107.7358	13.47910
CAMBRIDGE BAY	BIAS	Y	-89.69221	0.2025923E-07	-89.69221	13.52986
CAMBRIDGE BAY	BIAS	Z	131.6195	-.2105997E-07	131.6195	22.68869

ARC SET NUMBER 27:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANARIAS	BIAS	X	-423.7815	-.3610295E-07	-423.7815	15.11703
CANARIAS	BIAS	Y	104.5246	0.2327875E-07	104.5246	15.75232
CANARIAS	BIAS	Z	-1034.250	0.2267910E-09	-1034.250	20.55355

ARC SET NUMBER 28:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANBERRA	BIAS	X	7.649206	0.1651538E-08	7.649206	14.75118
CANBERRA	BIAS	Y	45.12362	-.1295406E-07	45.12362	15.03596
CANBERRA	BIAS	Z	92.33563	0.1159015E-06	92.33563	20.40007

ARC SET NUMBER 29:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAPE WELLEN III	BIAS	X	-68.80184	0.5261746E-07	-68.80184	14.19544
CAPE WELLEN III	BIAS	Y	65.69406	-.4369144E-07	65.69406	13.76287
CAPE WELLEN III	BIAS	Z	-89.28867	0.1648782E-07	-89.28867	19.39371

ARC SET NUMBER 30:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CASEY	BIAS	X	779.1315	-.1092705E-06	779.1315	75.87539
CASEY	BIAS	Y	-341.7693	0.2698869E-07	-341.7693	75.79298
CASEY	BIAS	Z	-810.7803	-.6423959E-07	-810.7803	77.01660

ARC SET NUMBER 31:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHA PA II	BIAS	X	-495.1609	-.2132302E-06	-495.1609	18.21945
CHA PA II	BIAS	Y	-71.75914	-.2082247E-06	-71.75914	17.92897
CHA PA II	BIAS	Z	-321.0608	0.1507245E-06	-321.0608	22.53344

ARC SET NUMBER 32:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHAMBON FORETII	BIAS	X	-63.43715	0.3933967E-08	-63.43715	13.26094
CHAMBON FORETII	BIAS	Y	-19.76154	0.1684785E-07	-19.76154	13.24740
CHAMBON FORETII	BIAS	Z	92.84628	0.3917614E-07	92.84628	18.46047

ARC SET NUMBER 33:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHANGCHUN	BIAS	X	-99.59425	-.9782620E-08	-99.59425	14.61135
CHANGCHUN	BIAS	Y	19.65790	-.4339883E-07	19.65790	14.59838
CHANGCHUN	BIAS	Z	167.9416	0.6606401E-07	167.9416	19.68063

ARC SET NUMBER 34:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

CHELYUSKIN IV	BIAS	X	-14.65394	-.8121254E-08	-14.65394	15.23122
CHELYUSKIN IV	BIAS	Y	-111.1484	-.2855865E-07	-111.1484	15.20544
CHELYUSKIN IV	BIAS	Z	-78.17696	-.5768782E-08	-78.17696	20.37262

ARC SET NUMBER 35:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHICHIJIMA	BIAS	X	-306.9330	0.4835658E-09	-306.9330	15.02802
CHICHIJIMA	BIAS	Y	-37.47114	-.1495548E-07	-37.47114	15.11132
CHICHIJIMA	BIAS	Z	231.0609	-.2996510E-07	231.0609	19.71407

ARC SET NUMBER 36:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COIMBRA	BIAS	X	25.49493	0.5204973E-08	25.49493	13.77403
COIMBRA	BIAS	Y	-13.40468	0.5013310E-07	-13.40468	13.91475
COIMBRA	BIAS	Z	-3.130419	0.9461167E-08	-3.130419	18.99332

ARC SET NUMBER 37:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COLLEGE III	BIAS	X	-8.205455	-.1325635E-08	-8.205455	13.65421
COLLEGE III	BIAS	Y	-49.08243	0.1588349E-08	-49.08243	13.45213
COLLEGE III	BIAS	Z	-93.85141	-.2649728E-07	-93.85141	18.97601

ARC SET NUMBER 38:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DAVIS	BIAS	X	-250.7226	-.1418546E-07	-250.7226	15.20731
DAVIS	BIAS	Y	209.8383	-.5788887E-07	209.8383	15.10992
DAVIS	BIAS	Z	155.8176	-.7876241E-07	155.8176	20.49147

ARC SET NUMBER 39:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DEL RIO	BIAS	X	313.8111	0.2588493E-06	313.8111	16.68865
DEL RIO	BIAS	Y	96.87359	-.1064278E-06	96.87359	16.53122
DEL RIO	BIAS	Z	-433.1901	-.8661240E-08	-433.1901	21.41774

ARC SET NUMBER 40:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DIKSON V	BIAS	X	-75.40032	-.2477243E-07	-75.40032	13.87282
DIKSON V	BIAS	Y	-137.6973	-.8096980E-08	-137.6973	13.81947
DIKSON V	BIAS	Z	-236.3622	0.1976584E-07	-236.3622	19.24150

ARC SET NUMBER 41:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOMBAS III	BIAS	X	-69.82863	-.1944698E-07	-69.82863	13.52631
DOMBAS III	BIAS	Y	-81.90023	0.2905790E-07	-81.90023	13.54256
DOMBAS III	BIAS	Z	-252.6832	0.9206665E-08	-252.6832	18.73227

ARC SET NUMBER 42:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOURBES	BIAS	X	18.46822	0.7099322E-09	18.46822	13.47947
DOURBES	BIAS	Y	-17.02302	0.1057884E-07	-17.02302	13.47207
DOURBES	BIAS	Z	68.12567	0.3039954E-07	68.12567	18.59058

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ARC SET NUMBER  43:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
DUMONT DURVILLE  BIAS  X      -141.2656      -.9658237E-08   -141.2656        14.64129
DUMONT DURVILLE  BIAS  Y      -422.6533      0.2290764E-07   -422.6533        14.58319
DUMONT DURVILLE  BIAS  Z      -2838.658      0.9253044E-07   -2838.658        20.03834

ARC SET NUMBER  44:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
DUSHETI II       BIAS  X      -204.8804      -.2511475E-07   -204.8804        14.04188
DUSHETI II       BIAS  Y       8.432115      0.1442366E-07    8.432115        13.92968
DUSHETI II       BIAS  Z      -112.9115      0.3366973E-07   -112.9115        19.07571

ARC SET NUMBER  45:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
DYMER            BIAS  X      -9.006979      -.7239165E-08   -9.006979        13.84932
DYMER            BIAS  Y       84.26345      0.1685107E-07    84.26345        13.83641
DYMER            BIAS  Z       107.8316      -.2324712E-07    107.8316        18.85155

ARC SET NUMBER  46:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
ESKDALEMUIR      BIAS  X       18.65573      -.1029569E-07    18.65573        13.54570
ESKDALEMUIR      BIAS  Y      -49.62860      0.3285665E-07   -49.62860        13.58306
ESKDALEMUIR      BIAS  Z      -64.75892      0.1075557E-07   -64.75892        18.71349

ARC SET NUMBER  47:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
EYREWELL         BIAS  X      -17.16291      0.9411048E-07   -17.16291        14.77358
EYREWELL         BIAS  Y      -38.32589      0.7526858E-07   -38.32589        14.92213
EYREWELL         BIAS  Z       62.34092      0.2780298E-07    62.34092        20.20506

ARC SET NUMBER  48:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
FORT CHURCHI II  BIAS  X      -109.2157      0.6281577E-08   -109.2157        13.58035
FORT CHURCHI II  BIAS  Y       39.73615      -.7517507E-08    39.73615        13.60700
FORT CHURCHI II  BIAS  Z      -255.5920      -.5470592E-08   -255.5920        19.05774

ARC SET NUMBER  49:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
FREDERICKSBURG   BIAS  X       66.78230      -.2190942E-07    66.78230        14.05292
FREDERICKSBURG   BIAS  Y      -55.42616      -.7266229E-08   -55.42616        14.09414
FREDERICKSBURG   BIAS  Z       129.2013      -.5001752E-08    129.2013        19.59013

ARC SET NUMBER  50:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
FUQUENE          BIAS  X       129.1009      0.9317752E-08    129.1009        16.00268
FUQUENE          BIAS  Y      -59.19436      -.5474565E-08   -59.19436        16.13648
FUQUENE          BIAS  Z       74.61597      0.5338830E-07    74.61597        20.54014

ARC SET NUMBER  51:
        LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                  ---------     ------------    ------------    --------------
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FURSTNFELDBRUCK	BIAS	X	-9.492779	0.1483569E-07	-9.492779	13.01140
FURSTNFELDBRUCK	BIAS	Y	5.663032	-.5400788E-08	5.663032	12.95773
FURSTNFELDBRUCK	BIAS	Z	5.219449	0.9171892E-08	5.219449	18.25296

ARC SET NUMBER 52:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GNANGARA	BIAS	X	-.1426236	0.2270520E-07	-.1426236	15.80631
GNANGARA	BIAS	Y	-132.8111	-.1771559E-06	-132.8111	15.77578
GNANGARA	BIAS	Z	139.9846	0.3120875E-07	139.9846	20.70362

ARC SET NUMBER 53:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GODHAVN II	BIAS	X	275.3921	-.1615033E-07	275.3921	14.11300
GODHAVN II	BIAS	Y	-308.5965	0.1939836E-08	-308.5965	14.01719
GODHAVN II	BIAS	Z	704.2582	0.2948242E-07	704.2582	19.32704

ARC SET NUMBER 54:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GORNOTAYEZHN II	BIAS	X	11.41478	-.2385850E-07	11.41478	13.33202
GORNOTAYEZHN II	BIAS	Y	-18.86658	-.5823142E-07	-18.86658	13.33446
GORNOTAYEZHN II	BIAS	Z	-79.44320	0.1068950E-07	-79.44320	18.64657

ARC SET NUMBER 55:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE R	BIAS	X	263.4963	0.2397599E-07	263.4963	14.48017
GREAT WHALE R	BIAS	Y	94.45070	0.7726484E-08	94.45070	14.53366
GREAT WHALE R	BIAS	Z	-75.22262	-.2377861E-07	-75.22262	19.52127

ARC SET NUMBER 56:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE RII	BIAS	X	139.2095	0.7914839E-07	139.2095	19.24385
GREAT WHALE RII	BIAS	Y	363.2158	0.2589362E-07	363.2158	19.64648
GREAT WHALE RII	BIAS	Z	-50.87638	-.8180582E-07	-50.87638	25.06158

ARC SET NUMBER 57:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GROCKA	BIAS	X	-21.74712	-.1508868E-07	-21.74712	13.33037
GROCKA	BIAS	Y	-47.19663	0.2911686E-07	-47.19663	13.23931
GROCKA	BIAS	Z	-63.96312	-.4324450E-07	-63.96312	18.44521

ARC SET NUMBER 58:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUAM	BIAS	X	151.5232	0.3782622E-07	151.5232	14.22227
GUAM	BIAS	Y	96.66162	-.3359639E-07	96.66162	15.52721
GUAM	BIAS	Z	58.20736	-.6527907E-07	58.20736	20.26615

ARC SET NUMBER 59:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUANGZHOU II	BIAS	X	71.99939	-.9277561E-07	71.99939	14.85641
GUANGZHOU II	BIAS	Y	65.69637	-.1479922E-06	65.69637	14.81296
GUANGZHOU II	BIAS	Z	6.075619	-.1010467E-06	6.075619	20.00487

ARC SET NUMBER 60:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTEBEESTHOEK	BIAS	X	97.28746	-.8009372E-07	97.28746	15.24094
HARTEBEESTHOEK	BIAS	Y	-13.05149	-.2262515E-06	-13.05149	15.31381
HARTEBEESTHOEK	BIAS	Z	73.74364	-.8494698E-07	73.74364	20.28237

ARC SET NUMBER 61:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTLAND	BIAS	X	-30.09316	-.2554162E-08	-30.09316	13.55524
HARTLAND	BIAS	Y	8.636782	0.3849501E-07	8.636782	13.60201
HARTLAND	BIAS	Z	43.56654	0.1801014E-07	43.56654	18.70032

ARC SET NUMBER 62:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HATIZYO II	BIAS	X	6.202817	-.5582840E-08	6.202817	14.45633
HATIZYO II	BIAS	Y	-790.3719	-.5725360E-07	-790.3719	14.70194
HATIZYO II	BIAS	Z	414.0028	-.5328858E-07	414.0028	19.54494

ARC SET NUMBER 63:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEISS ISLAND II	BIAS	X	92.37824	-.2624340E-07	92.37824	13.64057
HEISS ISLAND II	BIAS	Y	-674.6274	0.1609056E-07	-674.6274	13.58499
HEISS ISLAND II	BIAS	Z	1148.801	0.4507849E-08	1148.801	19.12257

ARC SET NUMBER 64:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEL III	BIAS	X	53.39936	0.9316744E-08	53.39936	13.17099
HEL III	BIAS	Y	-161.1381	0.3257212E-08	-161.1381	13.17200
HEL III	BIAS	Z	-94.44671	0.8044545E-08	-94.44671	18.40960

ARC SET NUMBER 65:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HERMANUS	BIAS	X	17.52884	0.7293296E-07	17.52884	14.66073
HERMANUS	BIAS	Y	16.97591	0.2265435E-06	16.97592	15.08747
HERMANUS	BIAS	Z	23.46574	0.4378973E-07	23.46574	20.02756

ARC SET NUMBER 66:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HONOLULU IV	BIAS	X	-141.5552	0.1566474E-07	-141.5552	15.47125
HONOLULU IV	BIAS	Y	89.63969	-.8232222E-07	89.63969	15.78874
HONOLULU IV	BIAS	Z	-340.6745	0.3857291E-08	-340.6745	20.56249

ARC SET NUMBER 67:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HORNSUND	BIAS	X	-16.05465	-.3016063E-08	-16.05465	15.10887
HORNSUND	BIAS	Y	-130.6956	0.1724742E-07	-130.6956	15.11724
HORNSUND	BIAS	Z	-19.28019	-.1170910E-07	-19.28019	19.88384

ARC SET NUMBER 68:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HUANCAYO	BIAS	X	86.82049	0.4770051E-07	86.82049	15.29531

HUANCAYO	BIAS	Y	48.13549	0.1583018E-08	48.13549	15.93710
HUANCAYO	BIAS	Z	9.087085	0.4474810E-07	9.087085	20.75622

ARC SET NUMBER 69:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HURBANOVO	BIAS	X	20.64783	0.6304739E-08	20.64783	13.47611
HURBANOVO	BIAS	Y	-15.04272	0.4871525E-08	-15.04272	13.44526
HURBANOVO	BIAS	Z	-58.76446	-.2188568E-07	-58.76446	18.55425

ARC SET NUMBER 70:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HYDERABAD	BIAS	X	311.0864	-.6891067E-07	311.0864	14.09424
HYDERABAD	BIAS	Y	17.79158	-.5135716E-08	17.79158	14.23731
HYDERABAD	BIAS	Z	491.2648	-.1066077E-07	491.2648	19.12399

ARC SET NUMBER 71:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
JAIPUR	BIAS	X	173.8965	-.4789467E-07	173.8965	13.68785
JAIPUR	BIAS	Y	-410.8849	0.1438743E-06	-410.8849	13.90371
JAIPUR	BIAS	Z	-32.93266	0.4118740E-07	-32.93266	19.00687

ARC SET NUMBER 72:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KAKIOKA II	BIAS	X	3.472549	-.4025057E-08	3.472549	13.10065
KAKIOKA II	BIAS	Y	11.91454	-.3677676E-07	11.91454	13.31168
KAKIOKA II	BIAS	Z	-92.67393	-.5939461E-07	-92.67393	18.50513

ARC SET NUMBER 73:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOYA	BIAS	X	0.5191773	-.1794476E-07	0.5191773	13.21832
KANOYA	BIAS	Y	45.21054	-.3621579E-07	45.21054	13.10386
KANOYA	BIAS	Z	-43.43760	0.1120002E-06	-43.43760	18.68751

ARC SET NUMBER 74:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOZAN	BIAS	X	-39.40608	-.3104444E-08	-39.40608	13.60037
KANOZAN	BIAS	Y	33.62839	-.2871274E-07	33.62839	13.68862
KANOZAN	BIAS	Z	-76.06759	-.3681299E-07	-76.06759	18.69827

ARC SET NUMBER 75:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KIRUNA II	BIAS	X	-819.8047	-.3145259E-08	-819.8047	17.58074
KIRUNA II	BIAS	Y	-1825.276	0.5136517E-08	-1825.276	17.58271
KIRUNA II	BIAS	Z	-43.89227	0.1419201E-08	-43.89227	21.75142

ARC SET NUMBER 76:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KLYUCHI II	BIAS	X	200.0202	-.5921895E-08	200.0202	14.07280
KLYUCHI II	BIAS	Y	-92.53781	0.2404054E-07	-92.53781	14.05941
KLYUCHI II	BIAS	Z	-30.23052	-.2606663E-07	-30.23052	19.29235

ARC SET NUMBER 77:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-555.8926	-.1603996E-06	-555.8926	14.29386
KODAIKANAL II	BIAS	Y	272.0166	-.4888175E-06	272.0166	14.45235
KODAIKANAL II	BIAS	Z	-72.03581	-.3338763E-07	-72.03581	19.16754

ARC SET NUMBER 78:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	169.3519	-.4314539E-08	169.3519	13.61792
KRASNAYA PAKHRA	BIAS	Y	-13.76833	0.1132482E-07	-13.76833	13.58434
KRASNAYA PAKHRA	BIAS	Z	178.3203	-.1580247E-07	178.3203	18.79427

ARC SET NUMBER 79:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS	X	9.798440	-.2955494E-07	9.798440	14.42602
LANZHOU II	BIAS	Y	10.29349	-.7042716E-07	10.29349	14.24371
LANZHOU II	BIAS	Z	-54.79936	-.1917712E-06	-54.79936	20.05692

ARC SET NUMBER 80:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS	X	-282.2485	-.1077350E-07	-282.2485	13.66065
LEIRVOGUR	BIAS	Y	590.9797	-.2604711E-07	590.9797	13.62978
LEIRVOGUR	BIAS	Z	-495.9078	-.1882178E-07	-495.9078	19.17914

ARC SET NUMBER 81:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS	X	-118.5173	-.1768965E-07	-118.5173	13.56091
LERWICK II	BIAS	Y	167.8580	0.2986295E-07	167.8580	13.59350
LERWICK II	BIAS	Z	26.82216	-.2365225E-08	26.82216	18.77635

ARC SET NUMBER 82:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOPARSKOYE	BIAS	X	109.8683	-.2691408E-08	109.8683	17.58191
LOPARSKOYE	BIAS	Y	336.4222	0.3413631E-08	336.4222	17.58406
LOPARSKOYE	BIAS	Z	-553.6766	0.3564948E-08	-553.6766	21.75616

ARC SET NUMBER 83:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOVO	BIAS	X	54.91559	-.2563990E-08	54.91559	15.02961
LOVO	BIAS	Y	-1.679181	0.7202564E-08	-1.679181	15.03321
LOVO	BIAS	Z	-3.122997	0.1014189E-07	-3.122997	19.74169

ARC SET NUMBER 84:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS	X	287.8095	0.1822408E-07	287.8095	16.59532
LUANDA BELAS I	BIAS	Y	-31.37914	0.1198168E-06	-31.37914	18.13658
LUANDA BELAS I	BIAS	Z	91.05495	-.8604759E-07	91.05495	22.63775

ARC SET NUMBER 85:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS	X	27.87581	0.2074672E-07	27.87581	14.06993
LUNPING	BIAS	Y	29.34326	0.4122626E-07	29.34326	14.09571

LUNPING	BIAS	Z	34.52232	-.2111614E-07	34.52232	19.09977

ARC SET NUMBER 86:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LVOV	BIAS	X	163.4112	0.2004861E-08	163.4112	13.47777
LVOV	BIAS	Y	124.7648	0.1212632E-07	124.7648	13.46291
LVOV	BIAS	Z	146.7153	-.2807082E-07	146.7153	18.57989

ARC SET NUMBER 87:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
M BOUR	BIAS	X	116.5991	0.5411916E-07	116.5991	15.08781
M BOUR	BIAS	Y	37.83068	0.2558736E-07	37.83068	15.51378
M BOUR	BIAS	Z	38.69186	0.2727259E-07	38.69186	20.29418

ARC SET NUMBER 88:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MACQUARIE ISLND	BIAS	X	273.2875	0.1966084E-07	273.2875	14.30700
MACQUARIE ISLND	BIAS	Y	8.026035	-.3077709E-07	8.026035	14.71512
MACQUARIE ISLND	BIAS	Z	303.1723	-.3266451E-07	303.1723	19.98574

ARC SET NUMBER 89:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MANHAY II	BIAS	X	9.040563	0.2339611E-08	9.040563	17.80938
MANHAY II	BIAS	Y	-18.38938	0.1140840E-07	-18.38938	17.79350
MANHAY II	BIAS	Z	165.4282	0.4336959E-07	165.4282	21.99439

ARC SET NUMBER 90:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAPUTO II	BIAS	X	365.6077	-.5819394E-07	365.6077	14.66336
MAPUTO II	BIAS	Y	33.24789	-.1986221E-06	33.24789	14.76200
MAPUTO II	BIAS	Z	-137.8761	-.3382379E-06	-137.8761	19.85709

ARC SET NUMBER 91:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MARTIN VIVIES	BIAS	X	-613.7287	-.2739685E-06	-613.7287	18.05722
MARTIN VIVIES	BIAS	Y	-647.5823	-.1963007E-06	-647.5823	18.50473
MARTIN VIVIES	BIAS	Z	-1952.515	-.3219409E-06	-1952.515	23.70910

ARC SET NUMBER 92:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAWSON	BIAS	X	16.94402	0.2505913E-07	16.94402	13.93621
MAWSON	BIAS	Y	18.96911	-.1835899E-07	18.96911	13.90541
MAWSON	BIAS	Z	193.3485	-.4587281E-07	193.3485	19.33842

ARC SET NUMBER 93:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEANOOK III	BIAS	X	109.5908	0.1768893E-07	109.5908	13.45989
MEANOOK III	BIAS	Y	13.23652	0.2143573E-08	13.23652	13.57992
MEANOOK III	BIAS	Z	-131.5877	0.1346721E-07	-131.5877	18.89943

ARC SET NUMBER 94:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEMAMBETSU	BIAS	X	-228.5052	-.1686883E-07	-228.5052	13.24226
MEMAMBETSU	BIAS	Y	142.4377	0.5158486E-07	142.4377	13.52204
MEMAMBETSU	BIAS	Z	62.92973	-.3218689E-07	62.92973	18.72883

ARC SET NUMBER 95:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIRNYY III	BIAS	X	-119.3362	-.6527491E-07	-119.3362	14.38913
MIRNYY III	BIAS	Y	54.41266	-.5584006E-07	54.41266	14.10894
MIRNYY III	BIAS	Z	-434.8375	-.1038965E-06	-434.8375	19.63195

ARC SET NUMBER 96:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIZUSAWA	BIAS	X	-128.3688	-.3134142E-08	-128.3688	13.60114
MIZUSAWA	BIAS	Y	43.46563	-.5707804E-08	43.46563	13.67721
MIZUSAWA	BIAS	Z	-187.5485	-.3802926E-07	-187.5485	18.70195

ARC SET NUMBER 97:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOLODEZHNAYA	BIAS	X	-9.054009	0.5503508E-08	-9.054009	14.37980
MOLODEZHNAYA	BIAS	Y	-107.6412	0.2066865E-07	-107.6412	14.30734
MOLODEZHNAYA	BIAS	Z	-239.8801	-.3381217E-07	-239.8801	19.45674

ARC SET NUMBER 98:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOULD BAY	BIAS	X	-27.60263	0.4195570E-07	-27.60263	13.57101
MOULD BAY	BIAS	Y	11.09040	0.3355055E-08	11.09040	13.55030
MOULD BAY	BIAS	Z	-37.13542	-.7559264E-09	-37.13542	19.03193

ARC SET NUMBER 99:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MUNTINLUPA	BIAS	X	-65.37580	0.1183821E-06	-65.37580	14.70020
MUNTINLUPA	BIAS	Y	-39.44612	-.5112650E-07	-39.44612	14.74137
MUNTINLUPA	BIAS	Z	29.75193	-.9449959E-07	29.75193	19.85917

ARC SET NUMBER 100:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAGYCENK II	BIAS	X	3.325173	0.6758946E-08	3.325173	17.61864
NAGYCENK II	BIAS	Y	-2.315564	0.2181701E-08	-2.315564	17.60067
NAGYCENK II	BIAS	Z	-84.22852	-.1433521E-07	-84.22852	21.73898

ARC SET NUMBER 101:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAMPULA	BIAS	X	-51.34432	0.4803914E-06	-51.34432	18.85270
NAMPULA	BIAS	Y	29.79663	0.9979660E-06	29.79663	20.16470
NAMPULA	BIAS	Z	292.1296	-.7893930E-06	292.1296	26.34873

ARC SET NUMBER 102:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NARSSARSSUAQ	BIAS	X	-344.6515	-.8873767E-08	-344.6515	15.31166
NARSSARSSUAQ	BIAS	Y	267.4011	-.3963748E-08	267.4011	15.24349
NARSSARSSUAQ	BIAS	Z	558.7038	0.5087330E-07	558.7038	20.25123

ARC SET NUMBER 103:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NEWPORT	BIAS	X	-26.14246	0.7209195E-07	-26.14246	13.10789
NEWPORT	BIAS	Y	108.3555	0.5219354E-08	108.3555	13.24707
NEWPORT	BIAS	Z	-105.6597	-.2542570E-07	-105.6597	18.51300

ARC SET NUMBER 104:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NIEMEGK	BIAS	X	-20.28405	0.7333181E-08	-20.28405	13.16848
NIEMEGK	BIAS	Y	2.362408	-.1779653E-09	2.362408	13.15751
NIEMEGK	BIAS	Z	-87.14663	0.1604050E-07	-87.14663	18.38310

ARC SET NUMBER 105:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVO KAZALINSK	BIAS	X	-96.73263	-.8883358E-07	-96.73263	13.56329
NOVO KAZALINSK	BIAS	Y	-165.8522	0.1230601E-07	-165.8522	13.51782
NOVO KAZALINSK	BIAS	Z	-.9667590	0.5008222E-07	-.9667589	18.93787

ARC SET NUMBER 106:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVOLAZAREVS II	BIAS	X	-259.2248	-.3545959E-07	-259.2248	20.17642
NOVOLAZAREVS II	BIAS	Y	80.94627	-.5533934E-08	80.94627	20.12804
NOVOLAZAREVS II	BIAS	Z	83.45361	0.4625758E-09	83.45361	21.94760

ARC SET NUMBER 107:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NURMIJARVI	BIAS	X	295.1098	-.1280243E-08	295.1098	14.79171
NURMIJARVI	BIAS	Y	-106.7500	0.1346531E-07	-106.7500	14.80794
NURMIJARVI	BIAS	Z	95.18619	0.2430337E-07	95.18619	18.79234

ARC SET NUMBER 108:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
OTTAWA	BIAS	X	149.5642	0.5945898E-08	149.5642	13.87102
OTTAWA	BIAS	Y	-142.2653	-.3480415E-08	-142.2653	13.93727
OTTAWA	BIAS	Z	161.4226	-.6704447E-07	161.4226	19.35408

ARC SET NUMBER 109:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PAMATAI II	BIAS	X	-648.5129	-.1779231E-08	-648.5129	15.57493
PAMATAI II	BIAS	Y	-741.1133	-.4256384E-08	-741.1133	15.42747
PAMATAI II	BIAS	Z	-94.00872	0.3187675E-07	-94.00872	20.53872

ARC SET NUMBER 110:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PANAGYURISHTE	BIAS	X	-177.7467	-.1980388E-07	-177.7467	15.01762
PANAGYURISHTE	BIAS	Y	-168.5954	0.2200883E-07	-168.5954	14.99919
PANAGYURISHTE	BIAS	Z	-201.4276	-.1414659E-07	-201.4276	19.65889

ARC SET NUMBER 111:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

PARATUNKA	BIAS	X	-332.4413	-.2849616E-07	-332.4413	14.18100
PARATUNKA	BIAS	Y	225.2430	-.2111138E-07	225.2430	14.33340
PARATUNKA	BIAS	Z	236.3262	0.9534368E-07	236.3262	19.52073

ARC SET NUMBER 112:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PATRONY	BIAS	X	35.50152	0.6229694E-08	35.50152	14.19703
PATRONY	BIAS	Y	41.54720	0.2473200E-07	41.54720	14.22222
PATRONY	BIAS	Z	-80.87562	0.8232591E-07	-80.87562	19.58312

ARC SET NUMBER 113:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PILAR	BIAS	X	17.06312	0.8965481E-08	17.06312	15.50823
PILAR	BIAS	Y	-1.759367	0.1074863E-07	-1.759367	15.69530
PILAR	BIAS	Z	-12.84557	0.4002734E-07	-12.84557	20.68849

ARC SET NUMBER 114:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PLESHENITZI	BIAS	X	291.1745	0.7418795E-08	291.1745	13.49000
PLESHENITZI	BIAS	Y	169.5645	0.8663436E-08	169.5645	13.48571
PLESHENITZI	BIAS	Z	-137.7053	-.1017646E-07	-137.7053	18.63106

ARC SET NUMBER 115:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PODKAM TUNGUSKA	BIAS	X	75.82034	-.2028962E-07	75.82034	14.44813
PODKAM TUNGUSKA	BIAS	Y	8.902408	0.3854443E-07	8.902408	14.50831
PODKAM TUNGUSKA	BIAS	Z	-288.3947	0.3686701E-07	-288.3947	20.01917

ARC SET NUMBER 116:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT MORESBY	BIAS	X	19.94564	0.3986873E-07	19.94564	14.81583
PORT MORESBY	BIAS	Y	56.65212	-.2256320E-06	56.65212	16.02401
PORT MORESBY	BIAS	Z	263.7034	-.2961313E-07	263.7034	20.57261

ARC SET NUMBER 117:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-ALFRED I	BIAS	X	-800.7723	-.2849408E-06	-800.7723	16.83601
PORT-ALFRED I	BIAS	Y	1103.628	-.6007454E-07	1103.628	16.49966
PORT-ALFRED I	BIAS	Z	171.7093	-.2948319E-06	171.7093	23.05957

ARC SET NUMBER 118:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-AUX-FRANCA	BIAS	X	229.0619	-.7091733E-07	229.0619	14.31652
PORT-AUX-FRANCA	BIAS	Y	194.8646	0.7831445E-07	194.8646	14.69668
PORT-AUX-FRANCA	BIAS	Z	675.9891	0.4593735E-07	675.9891	19.95996

ARC SET NUMBER 119:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RESOLUTE BAY	BIAS	X	40.34927	0.2490178E-07	40.34927	13.56828
RESOLUTE BAY	BIAS	Y	31.49228	0.2300707E-07	31.49228	13.59929
RESOLUTE BAY	BIAS	Z	70.22057	0.9341297E-08	70.22057	19.02193

ARC SET NUMBER 120:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RUDE SKOV	BIAS	X	41.27171	-.1366419E-08	41.27171	16.02272
RUDE SKOV	BIAS	Y	-8.132553	0.5036541E-08	-8.132553	16.02384
RUDE SKOV	BIAS	Z	-58.47258	0.1034392E-07	-58.47258	20.49208

ARC SET NUMBER 121:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SABHAWALA II	BIAS	X	-7.347155	-.7208202E-07	-7.347155	13.69461
SABHAWALA II	BIAS	Y	-68.97326	0.9174594E-07	-68.97326	13.85651
SABHAWALA II	BIAS	Z	24.14175	0.1199170E-06	24.14175	19.05530

ARC SET NUMBER 122:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN JUAN II	BIAS	X	-45.85596	0.4889764E-07	-45.85596	14.79535
SAN JUAN II	BIAS	Y	181.6978	-.7740481E-07	181.6978	15.33819
SAN JUAN II	BIAS	Z	186.2728	-.9141050E-08	186.2728	20.30778

ARC SET NUMBER 123:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN PABLO	BIAS	X	31.77965	0.1711050E-07	31.77965	15.55103
SAN PABLO	BIAS	Y	16.00728	0.3149727E-07	16.00728	15.56659
SAN PABLO	BIAS	Z	-76.33034	0.3429890E-07	-76.33034	20.32738

ARC SET NUMBER 124:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SANAE II	BIAS	X	-47.02585	-.1193704E-06	-47.02585	16.53457
SANAE II	BIAS	Y	-71.18781	-.4293551E-07	-71.18781	15.50229
SANAE II	BIAS	Z	45.13648	0.4927689E-07	45.13648	21.62173

ARC SET NUMBER 125:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHESHAN	BIAS	X	-226.5839	0.2139745E-07	-226.5839	13.97419
SHESHAN	BIAS	Y	72.75697	0.5095232E-07	72.75697	13.97747
SHESHAN	BIAS	Z	226.8677	0.1796364E-08	226.8677	19.01920

ARC SET NUMBER 126:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHILLONG	BIAS	X	-95.47270	-.2330526E-06	-95.47270	15.10802
SHILLONG	BIAS	Y	-88.37057	-.5834213E-07	-88.37057	14.81434
SHILLONG	BIAS	Z	-372.2533	0.2920735E-06	-372.2533	20.20301

ARC SET NUMBER 127:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SITKA III	BIAS	X	9.280548	-.6472547E-07	9.280548	14.66513
SITKA III	BIAS	Y	-10.29091	-.3421366E-07	-10.29091	14.66082
SITKA III	BIAS	Z	-55.02909	0.5966767E-07	-55.02909	19.87880

ARC SET NUMBER 128:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SODANKYLA	BIAS	X	-149.8278	-.2278114E-07	-149.8278	13.34161

SODANKYLA	BIAS	Y	-107.6607	0.2987173E-07	-107.6607	13.38872
SODANKYLA	BIAS	Z	-590.3845	0.2287317E-07	-590.3845	18.71477

ARC SET NUMBER 129:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SOUTH GEORGIA	BIAS	X	-74.27180	-.4351658E-09	-74.27180	17.58741
SOUTH GEORGIA	BIAS	Y	-365.8165	0.1840208E-07	-365.8165	17.59699
SOUTH GEORGIA	BIAS	Z	104.0417	-.4515159E-07	104.0417	21.78211

ARC SET NUMBER 130:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ST JOHN S	BIAS	X	61.24019	0.2130802E-07	61.24019	14.66412
ST JOHN S	BIAS	Y	25.29274	0.4751538E-07	25.29274	14.32350
ST JOHN S	BIAS	Z	-2.427526	0.5163172E-07	-2.427526	19.98043

ARC SET NUMBER 131:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEKOLINIY	BIAS	X	-268.1664	-.3445803E-07	-268.1664	14.47805
STEKOLINIY	BIAS	Y	-738.8118	0.5364642E-07	-738.8118	14.69765
STEKOLINIY	BIAS	Z	42.08284	0.1503656E-08	42.08284	20.08269

ARC SET NUMBER 132:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEPANOVKA III	BIAS	X	-96.80663	-.3560273E-07	-96.80663	13.56948
STEPANOVKA III	BIAS	Y	-700.6531	0.3572783E-07	-700.6531	13.52870
STEPANOVKA III	BIAS	Z	69.78378	-.3057511E-07	69.78378	18.67777

ARC SET NUMBER 133:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SURLARI II	BIAS	X	22.15379	-.4094986E-07	22.15379	13.35293
SURLARI II	BIAS	Y	-32.43943	0.4361089E-07	-32.43943	13.27977
SURLARI II	BIAS	Z	-64.05359	-.3946407E-07	-64.05359	18.49840

ARC SET NUMBER 134:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SYOWA BASE II	BIAS	X	-30.13162	-.2098100E-07	-30.13162	15.25693
SYOWA BASE II	BIAS	Y	-58.13094	0.2830146E-07	-58.13094	15.05713
SYOWA BASE II	BIAS	Z	18.94561	-.3956020E-07	18.94561	20.18836

ARC SET NUMBER 135:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TAMANRASSET IV	BIAS	X	50.45278	0.6483681E-07	50.45278	15.81199
TAMANRASSET IV	BIAS	Y	-239.4962	0.1989821E-07	-239.4962	15.74389
TAMANRASSET IV	BIAS	Z	-34.08913	-.1445347E-06	-34.08913	21.18839

ARC SET NUMBER 136:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TANGERANG III	BIAS	X	16.88521	0.1712122E-06	16.88521	15.51084
TANGERANG III	BIAS	Y	-36.03071	0.4627395E-07	-36.03071	15.96699
TANGERANG III	BIAS	Z	89.54759	0.7879144E-07	89.54759	20.91585

ARC SET NUMBER 137:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TATUOCA III	BIAS	X	54.19858	0.1288476E-07	54.19858	17.18363
TATUOCA III	BIAS	Y	-96.51058	0.2581016E-07	-96.51058	17.65207
TATUOCA III	BIAS	Z	66.64007	0.6547761E-07	66.64007	22.32152

ARC SET NUMBER 138:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE	BIAS	X	-278.5946	-.3202582E-08	-278.5946	15.33146
THULE	BIAS	Y	228.7379	0.3118100E-08	228.7379	15.26953
THULE	BIAS	Z	-66.64916	0.1470289E-07	-66.64916	20.17213

ARC SET NUMBER 139:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE III	BIAS	X	-53.23943	-.2224056E-08	-53.23943	14.63784
THULE III	BIAS	Y	92.50116	0.1092998E-08	92.50116	14.57434
THULE III	BIAS	Z	24.58291	0.1318011E-07	24.58291	19.65294

ARC SET NUMBER 140:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIHANY II	BIAS	X	-12.75873	0.5058797E-08	-12.75873	14.44611
TIHANY II	BIAS	Y	6.009547	0.7170440E-08	6.009547	14.40379
TIHANY II	BIAS	Z	-50.43412	-.2628630E-07	-50.43412	20.42161

ARC SET NUMBER 141:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIKSI VI	BIAS	X	-67.74074	0.1187814E-07	-67.74074	14.88958
TIKSI VI	BIAS	Y	-156.0646	-.2254761E-07	-156.0646	14.88560
TIKSI VI	BIAS	Z	-109.8087	-.5258913E-07	-109.8087	20.14794

ARC SET NUMBER 142:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TOLEDO III	BIAS	X	16.05176	0.1989605E-08	16.05176	17.51359
TOLEDO III	BIAS	Y	4.236765	0.3853067E-08	4.236765	17.51430
TOLEDO III	BIAS	Z	-12.78446	0.4364852E-08	-12.78446	21.61752

ARC SET NUMBER 143:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TRIVANDRUM	BIAS	X	281.7368	-.2452670E-06	281.7368	14.37553
TRIVANDRUM	BIAS	Y	198.8168	-.7959181E-06	198.8168	14.63561
TRIVANDRUM	BIAS	Z	205.3052	0.1819020E-07	205.3052	19.29843

ARC SET NUMBER 144:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TROMSO	BIAS	X	122.8603	-.2699360E-07	122.8603	13.37709
TROMSO	BIAS	Y	-407.0033	0.4299990E-07	-407.0033	13.43113
TROMSO	BIAS	Z	114.5445	-.4537486E-09	114.5445	18.77372

ARC SET NUMBER 145:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TSUMEB	BIAS	X	65.18467	0.2200925E-07	65.18467	14.28065
TSUMEB	BIAS	Y	-49.85361	0.6106816E-07	-49.85361	14.92045

TSUMEB	BIAS	Z	95.96953	0.8165450E-08	95.96953	19.83967

ARC SET NUMBER 146:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TUCSON	BIAS	X	-37.61921	-.5513782E-07	-37.61921	13.49013
TUCSON	BIAS	Y	-63.17058	0.1012840E-07	-63.17058	13.57598
TUCSON	BIAS	Z	136.4078	0.1062997E-07	136.4078	18.75925

ARC SET NUMBER 147:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TULSA II	BIAS	X	-15.54567	0.1339449E-06	-15.54567	30.74033
TULSA II	BIAS	Y	-36.56564	0.1473428E-07	-36.56564	30.58118
TULSA II	BIAS	Z	41.28346	0.7544784E-07	41.28346	33.62665

ARC SET NUMBER 148:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
UJJAIN	BIAS	X	-226.3071	-.1259907E-07	-226.3071	17.48953
UJJAIN	BIAS	Y	181.7088	0.1791244E-07	181.7088	17.49971
UJJAIN	BIAS	Z	278.1228	-.3932017E-08	278.1228	21.57084

ARC SET NUMBER 149:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
URUMQI	BIAS	X	-45.86856	-.5013489E-07	-45.86856	15.29021
URUMQI	BIAS	Y	-12.41892	-.3912218E-07	-12.41892	15.25448
URUMQI	BIAS	Z	50.75914	-.4050090E-07	50.75914	20.22712

ARC SET NUMBER 150:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VALENTIA	BIAS	X	138.7638	0.9011083E-08	138.7638	13.32815
VALENTIA	BIAS	Y	-58.80710	0.5363629E-07	-58.80710	13.45732
VALENTIA	BIAS	Z	13.13442	-.8182917E-08	13.13442	18.73633

ARC SET NUMBER 151:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VANNOVSKAYA II	BIAS	X	190.7975	0.6182791E-07	190.7975	14.01357
VANNOVSKAYA II	BIAS	Y	94.39900	0.4991780E-07	94.39900	13.83114
VANNOVSKAYA II	BIAS	Z	69.73780	0.3217344E-07	69.73780	19.21584

ARC SET NUMBER 152:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VASSOURAS	BIAS	X	88.71928	0.1172497E-07	88.71928	15.34081
VASSOURAS	BIAS	Y	-62.19105	0.3933265E-07	-62.19105	15.76397
VASSOURAS	BIAS	Z	-36.61053	-.4328118E-07	-36.61053	20.75962

ARC SET NUMBER 153:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VICTORIA	BIAS	X	41.93109	0.9242357E-07	41.93109	13.79416
VICTORIA	BIAS	Y	4.090072	-.6544798E-07	4.090072	13.95068
VICTORIA	BIAS	Z	-305.0182	-.1888349E-07	-305.0182	19.14964

ARC SET NUMBER 154:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

VOSTOK	BIAS	X	34.90294	0.7012867E-07	34.90294	14.95373
VOSTOK	BIAS	Y	62.26717	-.3007156E-07	62.26717	14.58955
VOSTOK	BIAS	Z	17.12411	0.7149375E-08	17.12411	20.19778

ARC SET NUMBER 155:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOYEYKOVO	BIAS	X	95.22589	0.2791223E-08	95.22589	13.87401
VOYEYKOVO	BIAS	Y	16.70715	0.5536257E-08	16.70715	13.88071
VOYEYKOVO	BIAS	Z	-277.0409	0.1186822E-07	-277.0409	18.92924

ARC SET NUMBER 156:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WIEN KOBENZL	BIAS	X	34.37361	0.1102730E-07	34.37361	13.20150
WIEN KOBENZL	BIAS	Y	-.7316804	0.3644169E-09	-.7316804	13.16230
WIEN KOBENZL	BIAS	Z	9.188181	-.1611380E-07	9.188181	18.36894

ARC SET NUMBER 157:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WINGST	BIAS	X	63.74177	-.2167048E-08	63.74177	13.47133
WINGST	BIAS	Y	45.88932	0.8682860E-08	45.88932	13.46943
WINGST	BIAS	Z	-78.53969	0.2492610E-07	-78.53969	18.60768

ARC SET NUMBER 158:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WITTEVEEN	BIAS	X	35.98170	-.3605457E-08	35.98170	13.19492
WITTEVEEN	BIAS	Y	3.080617	0.1255879E-07	3.080617	13.19265
WITTEVEEN	BIAS	Z	-85.63318	0.3148840E-07	-85.63318	18.42375

ARC SET NUMBER 159:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WUHAN	BIAS	X	63.36393	0.3335557E-08	63.36393	14.42715
WUHAN	BIAS	Y	29.31250	0.2123740E-07	29.31250	14.40543
WUHAN	BIAS	Z	-57.38750	-.1333080E-06	-57.38750	19.62073

ARC SET NUMBER 160:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YAKUTSK II	BIAS	X	94.25936	-.2213311E-07	94.25936	14.09375
YAKUTSK II	BIAS	Y	-1177.673	-.4064563E-07	-1177.673	14.14776
YAKUTSK II	BIAS	Z	97.80723	-.5339081E-07	97.80723	19.43424

ARC SET NUMBER 161:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR	BIAS	X	-265.8855	-.1073508E-07	-265.8855	17.51414
YANGI-BAZAR	BIAS	Y	40.10124	0.1761487E-08	40.10124	17.51723
YANGI-BAZAR	BIAS	Z	-110.2307	0.1108191E-07	-110.2307	21.61530

ARC SET NUMBER 162:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR II	BIAS	X	-260.8562	-.1227078E-06	-260.8562	15.39717
YANGI-BAZAR II	BIAS	Y	43.46858	0.2513481E-07	43.46858	15.48457
YANGI-BAZAR II	BIAS	Z	-70.91758	0.1318154E-06	-70.91758	20.78438

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ARC SET NUMBER 163:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
        -----                    ---------      ------------     ------------    --------------
YELLOW-KNIFE       BIAS  X      403.1785       -.6134620E-08     403.1785         13.66280
YELLOW-KNIFE       BIAS  Y     -210.5290       0.2913409E-09    -210.5290         13.70734
YELLOW-KNIFE       BIAS  Z      142.5929       -.1919425E-07     142.5929         18.96918

ARC SET NUMBER 164:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
        -----                    ---------      ------------     ------------    --------------
YUZHNO SAKH IV     BIAS  X     -74.36902       -.1268400E-07    -74.36902         14.39942
YUZHNO SAKH IV     BIAS  Y     -56.76724       0.1521944E-07    -56.76724         14.43733
YUZHNO SAKH IV     BIAS  Z      82.83098       -.1780411E-07     82.83098         19.29091

ARC SET NUMBER 165:
        LABEL                    OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
        -----                    ---------      ------------     ------------    --------------
ZAYMISHCHE III     BIAS  X    -112.7568        -.2517671E-07   -112.7568          13.40564
ZAYMISHCHE III     BIAS  Y    -118.1578        0.2260367E-08   -118.1578          13.35070
ZAYMISHCHE III     BIAS  Z     122.0788        -.2688023E-07    122.0788          18.73824

--LAST ARC-SET PROCESSED.  TOTAL NUMBER OF ARC-SETS EQUALS:   165


 GENERATING COMMON PARAMETER MATRIX STATISTICS:
*** ND =     2IER = 0   ** STATC **

-- In STATC. Input sigmas and matrix from unit 15
GREADO INPUTING RESTART DATA FROM UNIT 15

DIMENSION VARIABLES READ FROM UNIT 15:
   IWIO = 0      INQL= 1   INTMTH= 1  EXTMTH = 0
   PEWP = 67.0     IVLPG = 1
   IWLPG = 1  NMAX =    13   NMEX =     1
   NMINI=  1   NMINE=  1   NCOM =  322
   MA =  3  MW =          0    NTIMI =  120
   NPSNI =    0  NTIME =    0  NPSNE =    0
   NOBS =  165   NSAT =    0   NSRV =   8
   MODEXT flag =  0
READING D MATRIX FROM UNIT 15
```

ITERATION # 3 ARC PARAMETER SOLUTIONS PLUS STATISTICS:

ARC SET NUMBER 1:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ABISKO VI	BIAS	X	24.29777	0.1708526E-05	24.29778	15.04821
ABISKO VI	BIAS	Y	56.70690	0.6047495E-07	56.70690	15.05932
ABISKO VI	BIAS	Z	24.78907	-.7400336E-06	24.78907	19.77926

ARC SET NUMBER 2:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ADDIS ABABA II	BIAS	X	579.8112	0.3426759E-05	579.8112	14.25142
ADDIS ABABA II	BIAS	Y	15.54553	0.2371398E-04	15.54555	15.26155
ADDIS ABABA II	BIAS	Z	133.8576	-.2045244E-04	133.8576	20.45700

ARC SET NUMBER 3:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALERT	BIAS	X	-16.71832	0.3624666E-06	-16.71832	14.02502
ALERT	BIAS	Y	29.66155	-.4723949E-05	29.66154	13.97923
ALERT	BIAS	Z	-196.8064	-.1080202E-05	-196.8064	19.14555

ARC SET NUMBER 4:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALIBAG III	BIAS	X	-192.6623	0.2020946E-05	-192.6623	13.48323
ALIBAG III	BIAS	Y	444.6406	-.3754609E-05	444.6406	13.92578
ALIBAG III	BIAS	Z	612.1820	-.8474571E-05	612.1820	18.90147

ARC SET NUMBER 5:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMA ATA	BIAS	X	163.4513	-.5309258E-06	163.4513	13.64148
ALMA ATA	BIAS	Y	33.03772	-.3966845E-05	33.03771	13.69863
ALMA ATA	BIAS	Z	-170.0297	-.4355385E-05	-170.0297	18.90626

ARC SET NUMBER 6:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMERIA	BIAS	X	-15.42751	0.9496921E-05	-15.42750	13.73240
ALMERIA	BIAS	Y	9.462776	-.2212484E-05	9.462774	13.68569
ALMERIA	BIAS	Z	18.45731	-.3882178E-05	18.45730	18.83432

ARC SET NUMBER 7:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AMATSIA	BIAS	X	99.09631	0.1001976E-04	99.09632	13.92383
AMATSIA	BIAS	Y	41.09154	-.4592617E-05	41.09153	13.99227
AMATSIA	BIAS	Z	285.2838	-.9823622E-05	285.2838	19.09767

ARC SET NUMBER 8:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ANNAMALAINAG II	BIAS	X	157.3679	0.1187036E-05	157.3679	14.42155

ANNAMALAINAG II	BIAS	Y	-105.2660	0.2231969E-05	-105.2660	14.58274
ANNAMALAINAG II	BIAS	Z	-46.85765	-.4224039E-05	-46.85765	19.30014

ARC SET NUMBER 9:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
APIA IV	BIAS	X	-8.908522	0.7212162E-05	-8.908515	14.45886
APIA IV	BIAS	Y	218.5457	0.2887980E-04	218.5458	15.10147
APIA IV	BIAS	Z	-911.8660	0.5967170E-04	-911.8660	20.11109

ARC SET NUMBER 10:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AQUILA	BIAS	X	3.629116	0.4946961E-05	3.629121	13.30204
AQUILA	BIAS	Y	35.05062	0.5259884E-05	35.05063	13.23216
AQUILA	BIAS	Z	-8.214133	0.1107576E-06	-8.214133	18.42418

ARC SET NUMBER 11:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARCTOWSKI	BIAS	X	-140.7564	-.4713524E-05	-140.7564	14.26076
ARCTOWSKI	BIAS	Y	321.7107	0.4896999E-05	321.7107	14.40868
ARCTOWSKI	BIAS	Z	668.6568	0.2092211E-05	668.6568	19.43861

ARC SET NUMBER 12:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARGENTINE ISLND	BIAS	X	93.87751	-.5671846E-05	93.87750	14.69463
ARGENTINE ISLND	BIAS	Y	-64.56675	0.5526913E-05	-64.56674	14.81749
ARGENTINE ISLND	BIAS	Z	467.9247	-.1568755E-05	467.9247	19.70603

ARC SET NUMBER 13:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARTI	BIAS	X	114.5203	0.1914766E-06	114.5203	13.59058
ARTI	BIAS	Y	-259.9052	0.5634371E-06	-259.9052	13.57911
ARTI	BIAS	Z	449.8107	-.6644021E-06	449.8107	18.84707

ARC SET NUMBER 14:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BAKER LAKE VII	BIAS	X	171.4660	-.3180138E-05	171.4660	13.36031
BAKER LAKE VII	BIAS	Y	-32.39827	-.6746422E-05	-32.39828	13.39775
BAKER LAKE VII	BIAS	Z	-91.51056	0.1606602E-05	-91.51056	18.74696

ARC SET NUMBER 15:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BANGUI IV	BIAS	X	-104.1718	-.3270974E-05	-104.1718	14.00486
BANGUI IV	BIAS	Y	-49.12157	-.1511525E-04	-49.12158	28.85026
BANGUI IV	BIAS	Z	203.8740	-.8128116E-05	203.8740	20.14439

ARC SET NUMBER 16:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BARROW IV	BIAS	X	17.88622	-.6012464E-05	17.88621	14.92924
BARROW IV	BIAS	Y	-59.69192	0.2468845E-05	-59.69191	13.74201
BARROW IV	BIAS	Z	-62.09541	0.6980063E-06	-62.09541	19.01073

ARC SET NUMBER 17:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEIJING	BIAS	X	630.4580	0.3336468E-05	630.4580	13.64230
BEIJING	BIAS	Y	-236.0520	0.4574826E-05	-236.0520	13.63071
BEIJING	BIAS	Z	453.7496	0.3008028E-05	453.7496	18.90107

ARC SET NUMBER 18:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BELSK	BIAS	X	116.2186	0.1045358E-05	116.2186	13.14157
BELSK	BIAS	Y	137.0633	0.1069403E-05	137.0633	13.14287
BELSK	BIAS	Z	302.9344	-.2484058E-05	302.9344	18.35778

ARC SET NUMBER 19:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEREZNAYKI III	BIAS	X	-395.8364	0.1019874E-05	-395.8364	39.00753
BEREZNAYKI III	BIAS	Y	-260.9535	-.4995696E-05	-260.9535	39.04676
BEREZNAYKI III	BIAS	Z	255.7623	-.4567205E-05	255.7623	41.26203

ARC SET NUMBER 20:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BJORNOYA II	BIAS	X	-107.7679	0.3708864E-05	-107.7679	13.57653
BJORNOYA II	BIAS	Y	45.01729	0.1480120E-06	45.01729	13.65335
BJORNOYA II	BIAS	Z	9.817481	-.5418677E-06	9.817480	18.86041

ARC SET NUMBER 21:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOROK	BIAS	X	-20.02374	0.1443616E-05	-20.02374	13.51949
BOROK	BIAS	Y	-63.62032	0.2118688E-05	-63.62032	13.51096
BOROK	BIAS	Z	-437.6190	-.3349435E-05	-437.6190	18.69834

ARC SET NUMBER 22:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOULDER	BIAS	X	-.8931937	-.1185826E-04	-.8932056	13.07598
BOULDER	BIAS	Y	53.20105	-.9134525E-05	53.20104	13.11683
BOULDER	BIAS	Z	-165.2733	0.1112869E-04	-165.2733	18.52802

ARC SET NUMBER 23:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE	BIAS	X	76.37607	0.1143341E-05	76.37607	17.56598
BRORFELDE	BIAS	Y	-102.9183	0.6661578E-07	-102.9183	17.56887
BRORFELDE	BIAS	Z	-208.8304	-.1095633E-05	-208.8304	21.71629

ARC SET NUMBER 24:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BRORFELDE II	BIAS	X	65.54347	0.3900370E-05	65.54348	17.76072
BRORFELDE II	BIAS	Y	-103.5738	-.3978749E-06	-103.5738	17.77661
BRORFELDE II	BIAS	Z	-192.2472	-.3503140E-05	-192.2472	22.00302

ARC SET NUMBER 25:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BUDKOV	BIAS	X	-33.54934	0.2026602E-05	-33.54934	13.83368
BUDKOV	BIAS	Y	-16.14552	0.1587159E-05	-16.14552	13.82245

BUDKOV	BIAS	Z	-42.58728	-.1139691E-05	-42.58728	18.81845

ARC SET NUMBER 26:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAMBRIDGE BAY	BIAS	X	109.4211	-.4575273E-05	109.4211	13.32501
CAMBRIDGE BAY	BIAS	Y	-86.19009	-.4934364E-05	-86.19009	13.36741
CAMBRIDGE BAY	BIAS	Z	120.8387	0.1840247E-05	120.8387	22.51293

ARC SET NUMBER 27:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANARIAS	BIAS	X	-421.5692	0.8551997E-05	-421.5692	14.91032
CANARIAS	BIAS	Y	96.79491	0.1101277E-04	96.79493	15.28214
CANARIAS	BIAS	Z	-1016.078	0.4101051E-05	-1016.078	20.22463

ARC SET NUMBER 28:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CANBERRA	BIAS	X	17.92808	-.3372500E-05	17.92808	14.00884
CANBERRA	BIAS	Y	52.79859	0.2445169E-04	52.79861	14.21429
CANBERRA	BIAS	Z	98.90340	0.2839374E-05	98.90340	19.73534

ARC SET NUMBER 29:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CAPE WELLEN III	BIAS	X	-72.66754	-.4212588E-05	-72.66754	13.53469
CAPE WELLEN III	BIAS	Y	57.99838	0.4070556E-05	57.99839	13.46930
CAPE WELLEN III	BIAS	Z	-108.7865	0.7721589E-06	-108.7865	18.86732

ARC SET NUMBER 30:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CASEY	BIAS	X	775.3538	-.2253563E-06	775.3538	75.74887
CASEY	BIAS	Y	-345.4244	0.2657077E-05	-345.4244	75.74193
CASEY	BIAS	Z	-826.0758	-.3354179E-05	-826.0758	76.89436

ARC SET NUMBER 31:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHA PA II	BIAS	X	-481.7011	0.8051615E-05	-481.7011	18.01676
CHA PA II	BIAS	Y	-73.40969	-.3962504E-05	-73.40969	17.89976
CHA PA II	BIAS	Z	-296.3792	-.1201736E-04	-296.3792	22.34866

ARC SET NUMBER 32:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHAMBON FORETII	BIAS	X	-69.25002	0.5386580E-05	-69.25002	13.21729
CHAMBON FORETII	BIAS	Y	-25.96490	0.4031974E-06	-25.96490	13.21090
CHAMBON FORETII	BIAS	Z	95.35084	-.1493316E-06	95.35084	18.41549

ARC SET NUMBER 33:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHANGCHUN	BIAS	X	-95.37755	0.9013368E-06	-95.37755	14.52374
CHANGCHUN	BIAS	Y	15.46390	-.1335072E-05	15.46390	14.50480
CHANGCHUN	BIAS	Z	179.0761	0.8508482E-06	179.0761	19.53753

ARC SET NUMBER 34:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

CHELYUSKIN IV	BIAS	X	-30.26662	0.7417782E-06	-30.26662	14.95408
CHELYUSKIN IV	BIAS	Y	-104.8090	0.2142547E-05	-104.8090	14.96746
CHELYUSKIN IV	BIAS	Z	-103.0904	-.2538197E-05	-103.0904	19.98410

ARC SET NUMBER 35:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
CHICHIJIMA	BIAS	X	-305.1318	0.1525687E-05	-305.1318	15.00452
CHICHIJIMA	BIAS	Y	-30.81151	0.4236551E-06	-30.81151	15.05187
CHICHIJIMA	BIAS	Z	237.8112	-.9799190E-06	237.8112	19.67189

ARC SET NUMBER 36:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COIMBRA	BIAS	X	21.63071	0.6599726E-05	21.63072	13.67719
COIMBRA	BIAS	Y	-19.06239	0.5326687E-06	-19.06239	13.75381
COIMBRA	BIAS	Z	6.687760	0.2315385E-05	6.687762	18.86423

ARC SET NUMBER 37:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
COLLEGE III	BIAS	X	-11.10098	-.7140937E-05	-11.10099	13.18067
COLLEGE III	BIAS	Y	-51.01190	0.1815816E-05	-51.01190	13.14888
COLLEGE III	BIAS	Z	-113.2270	-.1596275E-05	-113.2270	18.59629

ARC SET NUMBER 38:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DAVIS	BIAS	X	-243.9405	0.5293978E-06	-243.9405	14.76721
DAVIS	BIAS	Y	207.6234	0.2436649E-05	207.6234	14.69584
DAVIS	BIAS	Z	150.3990	-.4636234E-06	150.3990	20.09708

ARC SET NUMBER 39:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DEL RIO	BIAS	X	305.9854	0.2748727E-04	305.9854	16.13703
DEL RIO	BIAS	Y	91.64068	-.1945643E-04	91.64066	15.73318
DEL RIO	BIAS	Z	-432.1146	0.2958961E-04	-432.1145	21.04321

ARC SET NUMBER 40:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DIKSON V	BIAS	X	-91.26691	0.1980988E-05	-91.26691	13.66308
DIKSON V	BIAS	Y	-133.8401	0.2172135E-05	-133.8401	13.65711
DIKSON V	BIAS	Z	-255.9076	-.1255057E-05	-255.9076	18.96887

ARC SET NUMBER 41:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOMBAS III	BIAS	X	-76.47596	0.3098687E-05	-76.47596	13.47200
DOMBAS III	BIAS	Y	-84.13600	-.3656427E-06	-84.13600	13.50085
DOMBAS III	BIAS	Z	-257.3139	-.1681720E-05	-257.3139	18.66426

ARC SET NUMBER 42:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DOURBES	BIAS	X	13.61523	0.3668996E-05	13.61524	13.45406
DOURBES	BIAS	Y	-21.77490	0.3700868E-06	-21.77490	13.45168
DOURBES	BIAS	Z	68.81594	-.4970616E-06	68.81594	18.56421

ARC SET NUMBER 43:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUMONT DURVILLE	BIAS	X	-143.0880	0.1977784E-05	-143.0880	13.75037
DUMONT DURVILLE	BIAS	Y	-409.2647	0.8379610E-05	-409.2647	13.69047
DUMONT DURVILLE	BIAS	Z	-2849.121	0.4525029E-06	-2849.121	19.31032

ARC SET NUMBER 44:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DUSHETI II	BIAS	X	-208.2955	0.6187144E-05	-208.2955	13.95023
DUSHETI II	BIAS	Y	11.79158	0.1322027E-05	11.79158	13.88076
DUSHETI II	BIAS	Z	-117.8831	-.4297411E-05	-117.8831	18.98286

ARC SET NUMBER 45:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
DYMER	BIAS	X	-8.461764	0.6984735E-06	-8.461763	13.82362
DYMER	BIAS	Y	85.32355	0.6290676E-06	85.32355	13.82205
DYMER	BIAS	Z	107.2791	-.1453091E-05	107.2791	18.82894

ARC SET NUMBER 46:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ESKDALEMUIR	BIAS	X	12.17247	0.2760070E-05	12.17248	13.49970
ESKDALEMUIR	BIAS	Y	-55.38545	0.1198426E-05	-55.38545	13.52382
ESKDALEMUIR	BIAS	Z	-63.08800	0.3395516E-06	-63.08800	18.66279

ARC SET NUMBER 47:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
EYREWELL	BIAS	X	-18.33824	0.5435678E-05	-18.33823	13.81373
EYREWELL	BIAS	Y	-47.74760	0.1055158E-04	-47.74759	13.93931
EYREWELL	BIAS	Z	34.37313	-.1125444E-04	34.37312	19.31158

ARC SET NUMBER 48:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FORT CHURCHI II	BIAS	X	-113.1454	-.2920464E-05	-113.1454	13.39704
FORT CHURCHI II	BIAS	Y	40.10316	-.8418040E-05	40.10315	13.39998
FORT CHURCHI II	BIAS	Z	-271.3004	0.5419784E-06	-271.3004	18.77497

ARC SET NUMBER 49:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FREDERICKSBURG	BIAS	X	60.31542	0.8568963E-05	60.31543	13.58729
FREDERICKSBURG	BIAS	Y	-41.88288	-.1550816E-04	-41.88290	13.77354
FREDERICKSBURG	BIAS	Z	125.9361	-.1225877E-04	125.9361	19.07298

ARC SET NUMBER 50:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FUQUENE	BIAS	X	130.5232	0.3320328E-05	130.5233	15.94053
FUQUENE	BIAS	Y	-61.63802	-.1926844E-05	-61.63802	16.05109
FUQUENE	BIAS	Z	78.38870	-.2014602E-05	78.38870	20.39117

ARC SET NUMBER 51:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

FURSTNFELDBRUCK	BIAS	X	-15.11499	0.3972432E-05	-15.11498	12.96095
FURSTNFELDBRUCK	BIAS	Y	1.195247	0.2242253E-05	1.195249	12.93015
FURSTNFELDBRUCK	BIAS	Z	4.968157	-.1369187E-05	4.968156	18.21772

ARC SET NUMBER 52:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GNANGARA	BIAS	X	2.197741	-.2058424E-05	2.197739	14.34070
GNANGARA	BIAS	Y	-117.3237	0.3574767E-05	-117.3237	14.76992
GNANGARA	BIAS	Z	145.3252	0.7703146E-05	145.3252	19.93236

ARC SET NUMBER 53:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GODHAVN II	BIAS	X	273.1702	0.2300669E-05	273.1702	13.98539
GODHAVN II	BIAS	Y	-304.3136	-.5303291E-05	-304.3136	13.93151
GODHAVN II	BIAS	Z	703.9625	-.2662815E-05	703.9625	19.13285

ARC SET NUMBER 54:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GORNOTAYEZHN II	BIAS	X	14.80435	0.5701691E-06	14.80435	13.25756
GORNOTAYEZHN II	BIAS	Y	-20.07839	-.1392010E-05	-20.07839	13.25404
GORNOTAYEZHN II	BIAS	Z	-70.36902	-.4162238E-05	-70.36902	18.56734

ARC SET NUMBER 55:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE R	BIAS	X	259.8318	0.1368290E-05	259.8318	14.40779
GREAT WHALE R	BIAS	Y	98.29878	-.4134409E-05	98.29877	14.45115
GREAT WHALE R	BIAS	Z	-84.88654	0.1018933E-06	-84.88654	19.35016

ARC SET NUMBER 56:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE RII	BIAS	X	126.4503	0.4193359E-05	126.4503	18.70753
GREAT WHALE RII	BIAS	Y	375.4862	-.1396567E-04	375.4862	19.02942
GREAT WHALE RII	BIAS	Z	-81.09737	0.6732863E-06	-81.09736	23.73658

ARC SET NUMBER 57:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GROCKA	BIAS	X	-25.34439	0.1480216E-05	-25.34438	13.22904
GROCKA	BIAS	Y	-50.84872	0.2378242E-05	-50.84871	13.19654
GROCKA	BIAS	Z	-65.51175	0.2218045E-05	-65.51175	18.39303

ARC SET NUMBER 58:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUAM	BIAS	X	176.3779	0.5957140E-05	176.3779	13.73233
GUAM	BIAS	Y	103.4677	-.4609226E-05	103.4677	15.08211
GUAM	BIAS	Z	62.97724	-.1013937E-04	62.97723	20.06753

ARC SET NUMBER 59:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUANGZHOU II	BIAS	X	86.38617	0.1209549E-04	86.38618	14.61208
GUANGZHOU II	BIAS	Y	55.22413	0.1008583E-04	55.22414	14.73266
GUANGZHOU II	BIAS	Z	27.34504	-.1375086E-04	27.34503	19.80676

ARC SET NUMBER 60:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTEBEESTHOEK	BIAS	X	96.71582	-.2625376E-05	96.71582	14.98688
HARTEBEESTHOEK	BIAS	Y	-9.126863	0.3468531E-05	-9.126859	15.07720
HARTEBEESTHOEK	BIAS	Z	85.30747	0.4667170E-06	85.30747	20.10256

ARC SET NUMBER 61:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTLAND	BIAS	X	-35.98757	0.3410385E-05	-35.98757	13.51289
HARTLAND	BIAS	Y	2.443972	0.1342309E-05	2.443974	13.53666
HARTLAND	BIAS	Z	47.81338	0.1229348E-05	47.81338	18.65102

ARC SET NUMBER 62:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HATIZYO II	BIAS	X	4.751333	0.1220682E-05	4.751334	14.34119
HATIZYO II	BIAS	Y	-775.1213	0.3667942E-05	-775.1213	14.43353
HATIZYO II	BIAS	Z	427.4419	-.4792023E-05	427.4419	19.39705

ARC SET NUMBER 63:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEISS ISLAND II	BIAS	X	86.95199	0.2687556E-05	86.95199	13.37591
HEISS ISLAND II	BIAS	Y	-675.4978	0.1131768E-05	-675.4978	13.38718
HEISS ISLAND II	BIAS	Z	1119.238	-.1350766E-05	1119.238	18.78320

ARC SET NUMBER 64:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEL III	BIAS	X	49.59899	0.1846437E-05	49.59899	13.14037
HEL III	BIAS	Y	-160.9862	0.4718896E-06	-160.9862	13.14987
HEL III	BIAS	Z	-95.74060	-.3470051E-05	-95.74061	18.37902

ARC SET NUMBER 65:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HERMANUS	BIAS	X	32.10886	-.1207624E-05	32.10886	14.06589
HERMANUS	BIAS	Y	15.55320	0.2591603E-05	15.55320	14.19950
HERMANUS	BIAS	Z	0.2910452	-.1157219E-04	0.2910336	19.65890

ARC SET NUMBER 66:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HONOLULU IV	BIAS	X	-149.4635	0.3732901E-05	-149.4635	14.01585
HONOLULU IV	BIAS	Y	83.87397	-.1698961E-05	83.87397	14.43871
HONOLULU IV	BIAS	Z	-313.6014	-.4632612E-05	-313.6014	19.39286

ARC SET NUMBER 67:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HORNSUND	BIAS	X	-19.55912	0.1379846E-05	-19.55912	15.07313
HORNSUND	BIAS	Y	-133.5414	0.2307305E-06	-133.5414	15.08781
HORNSUND	BIAS	Z	-28.43368	-.2288929E-06	-28.43368	19.82731

ARC SET NUMBER 68:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HUANCAYO	BIAS	X	98.34356	-.3024716E-05	98.34355	14.25246

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HUANCAYO            BIAS  Y    42.42107       0.6748083E-06    42.42107       15.81046
HUANCAYO            BIAS  Z    7.321777       0.6190067E-05    7.321783       20.56529

ARC SET NUMBER  69:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
HURBANOVO           BIAS  X    17.75566       0.1178863E-05    17.75566       13.44087
HURBANOVO           BIAS  Y    -17.33343      0.1924506E-05    -17.33343      13.42738
HURBANOVO           BIAS  Z    -59.87298      -.3358567E-06    -59.87298      18.53347

ARC SET NUMBER  70:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
HYDERABAD           BIAS  X    320.4231       0.2848816E-05    320.4231       13.99791
HYDERABAD           BIAS  Y    17.80691       0.2589774E-05    17.80691       14.20423
HYDERABAD           BIAS  Z    493.0801       -.4684779E-05    493.0801       19.08291

ARC SET NUMBER  71:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
JAIPUR              BIAS  X    178.8270       0.1339241E-05    178.8270       13.57024
JAIPUR              BIAS  Y    -412.2212      0.1267856E-05    -412.2212      13.77803
JAIPUR              BIAS  Z    -28.97100      -.2104406E-05    -28.97101      18.84380

ARC SET NUMBER  72:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
KAKIOKA II          BIAS  X    0.4870129      0.3871556E-06    0.4870133      12.96632
KAKIOKA II          BIAS  Y    24.44834       0.4807575E-05    24.44834       13.03712
KAKIOKA II          BIAS  Z    -80.27469      -.6627432E-05    -80.27470      18.37482

ARC SET NUMBER  73:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
KANOYA              BIAS  X    6.142838       0.2024703E-05    6.142840       13.11526
KANOYA              BIAS  Y    51.41488       0.8774695E-06    51.41488       13.01165
KANOYA              BIAS  Z    -38.20520      -.2612982E-06    -38.20520      18.59586

ARC SET NUMBER  74:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
KANOZAN             BIAS  X    -40.89561      0.4106401E-06    -40.89561      13.54637
KANOZAN             BIAS  Y    42.39420       0.2717386E-05    42.39420       13.57610
KANOZAN             BIAS  Z    -67.97736      -.3921446E-05    -67.97737      18.64047

ARC SET NUMBER  75:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
KIRUNA II           BIAS  X    -820.9786      0.3448131E-06    -820.9786      17.57719
KIRUNA II           BIAS  Y    -1825.250      0.1492135E-06    -1825.250      17.57945
KIRUNA II           BIAS  Z    -46.67718      -.1928191E-06    -46.67718      21.74438

ARC SET NUMBER  76:
          LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
          -----                ---------      ------------     ------------   --------------
KLYUCHI II          BIAS  X    192.9784       0.3369720E-05    192.9784       13.96713
KLYUCHI II          BIAS  Y    -86.43971      -.2093038E-06    -86.43971      13.95999
KLYUCHI II          BIAS  Z    -21.72392      -.5869549E-05    -21.72393      19.11737

ARC SET NUMBER  77:
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LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-547.9692	0.1217436E-05	-547.9692	14.04973
KODAIKANAL II	BIAS	Y	272.7738	0.1450546E-05	272.7738	14.38168
KODAIKANAL II	BIAS	Z	-68.67539	-.8178212E-05	-68.67540	19.13192

ARC SET NUMBER 78:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	168.0819	0.1453837E-05	168.0819	13.55689
KRASNAYA PAKHRA	BIAS	Y	-9.467364	0.2221916E-05	-9.467362	13.53829
KRASNAYA PAKHRA	BIAS	Z	182.6230	-.3343678E-05	182.6230	18.72962

ARC SET NUMBER 79:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS	X	10.05269	0.5375375E-05	10.05270	14.15270
LANZHOU II	BIAS	Y	7.965635	0.6032857E-05	7.965641	14.07957
LANZHOU II	BIAS	Z	-15.66513	-.8429602E-05	-15.66513	19.53045

ARC SET NUMBER 80:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS	X	-292.3909	0.6024112E-05	-292.3909	13.46007
LEIRVOGUR	BIAS	Y	588.1114	0.1976307E-05	588.1114	13.43331
LEIRVOGUR	BIAS	Z	-492.7441	-.5177824E-05	-492.7441	18.90910

ARC SET NUMBER 81:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS	X	-125.5514	0.2778230E-05	-125.5514	13.50279
LERWICK II	BIAS	Y	162.8265	0.8134834E-06	162.8265	13.53330
LERWICK II	BIAS	Z	25.33198	-.5455207E-06	25.33198	18.70580

ARC SET NUMBER 82:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOPARSKOYE	BIAS	X	108.1242	0.3161740E-06	108.1242	17.57840
LOPARSKOYE	BIAS	Y	337.2901	0.1438713E-06	337.2901	17.58042
LOPARSKOYE	BIAS	Z	-556.2328	-.3130515E-06	-556.2328	21.74901

ARC SET NUMBER 83:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOVO	BIAS	X	52.19099	0.1264216E-05	52.19099	15.01887
LOVO	BIAS	Y	-1.289347	0.2261957E-07	-1.289347	15.02522
LOVO	BIAS	Z	-5.189310	-.1581720E-05	-5.189311	19.72730

ARC SET NUMBER 84:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS	X	300.1844	-.6659787E-06	300.1844	15.97253
LUANDA BELAS I	BIAS	Y	-44.70018	-.1998394E-07	-44.70018	16.89655
LUANDA BELAS I	BIAS	Z	69.84637	0.6046090E-05	69.84638	21.62713

ARC SET NUMBER 85:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS	X	34.46011	0.5041195E-05	34.46011	14.01536
LUNPING	BIAS	Y	24.89892	0.6830258E-05	24.89892	14.06499

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-547.9692	0.1217436E-05	-547.9692	14.04973
KODAIKANAL II	BIAS	Y	272.7738	0.1450546E-05	272.7738	14.38168
KODAIKANAL II	BIAS	Z	-68.67539	-.8178212E-05	-68.67540	19.13192

ARC SET NUMBER 78:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	168.0819	0.1453837E-05	168.0819	13.55689
KRASNAYA PAKHRA	BIAS	Y	-9.467364	0.2221916E-05	-9.467362	13.53829
KRASNAYA PAKHRA	BIAS	Z	182.6230	-.3343678E-05	182.6230	18.72962

ARC SET NUMBER 79:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS	X	10.05269	0.5375375E-05	10.05270	14.15270
LANZHOU II	BIAS	Y	7.965635	0.6032857E-05	7.965641	14.07957
LANZHOU II	BIAS	Z	-15.66513	-.8429602E-05	-15.66513	19.53045

ARC SET NUMBER 80:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS	X	-292.3909	0.6024112E-05	-292.3909	13.46007
LEIRVOGUR	BIAS	Y	588.1114	0.1976307E-05	588.1114	13.43331
LEIRVOGUR	BIAS	Z	-492.7441	-.5177824E-05	-492.7441	18.90910

ARC SET NUMBER 81:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS	X	-125.5514	0.2778230E-05	-125.5514	13.50279
LERWICK II	BIAS	Y	162.8265	0.8134834E-06	162.8265	13.53330
LERWICK II	BIAS	Z	25.33198	-.5455207E-06	25.33198	18.70580

ARC SET NUMBER 82:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOPARSKOYE	BIAS	X	108.1242	0.3161740E-06	108.1242	17.57840
LOPARSKOYE	BIAS	Y	337.2901	0.1438713E-06	337.2901	17.58042
LOPARSKOYE	BIAS	Z	-556.2328	-.3130515E-06	-556.2328	21.74901

ARC SET NUMBER 83:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LOVO	BIAS	X	52.19099	0.1264216E-05	52.19099	15.01887
LOVO	BIAS	Y	-1.289347	0.2261957E-07	-1.289347	15.02522
LOVO	BIAS	Z	-5.189310	-.1581720E-05	-5.189311	19.72730

ARC SET NUMBER 84:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS	X	300.1844	-.6659787E-06	300.1844	15.97253
LUANDA BELAS I	BIAS	Y	-44.70018	-.1998394E-07	-44.70018	16.89655
LUANDA BELAS I	BIAS	Z	69.84637	0.6046090E-05	69.84638	21.62713

ARC SET NUMBER 85:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS	X	34.46011	0.5041195E-05	34.46011	14.01536
LUNPING	BIAS	Y	24.89892	0.6830258E-05	24.89892	14.06499

LUNPING	BIAS	Z	39.95006	-.1156779E-05	39.95006	19.03593

ARC SET NUMBER 86:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LVOV	BIAS	X	162.2427	0.5174050E-06	162.2427	13.44578
LVOV	BIAS	Y	124.2173	0.1014460E-05	124.2173	13.44445
LVOV	BIAS	Z	145.4718	-.1210642E-05	145.4718	18.55641

ARC SET NUMBER 87:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
M BOUR	BIAS	X	146.4468	0.1474773E-04	146.4468	14.28403
M BOUR	BIAS	Y	24.68684	0.1964967E-04	24.68686	15.33861
M BOUR	BIAS	Z	40.75362	-.4923307E-05	40.75362	20.13648

ARC SET NUMBER 88:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MACQUARIE ISLND	BIAS	X	275.9470	0.3759260E-05	275.9470	13.64919
MACQUARIE ISLND	BIAS	Y	10.16911	0.2354353E-05	10.16911	13.92384
MACQUARIE ISLND	BIAS	Z	300.1008	0.3678456E-05	300.1008	19.12622

ARC SET NUMBER 89:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MANHAY II	BIAS	X	1.856642	0.5308749E-05	1.856647	17.77120
MANHAY II	BIAS	Y	-25.02291	0.5354427E-06	-25.02291	17.76420
MANHAY II	BIAS	Z	165.9524	-.9997562E-06	165.9524	21.95220

ARC SET NUMBER 90:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAPUTO II	BIAS	X	361.5911	-.4136641E-05	361.5911	14.36649
MAPUTO II	BIAS	Y	26.08495	0.1312511E-05	26.08495	14.43340
MAPUTO II	BIAS	Z	-123.3684	0.1792431E-05	-123.3684	19.61531

ARC SET NUMBER 91:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MARTIN VIVIES	BIAS	X	-598.0023	0.1797133E-05	-598.0023	16.12733
MARTIN VIVIES	BIAS	Y	-648.6332	-.1074977E-04	-648.6332	16.80880
MARTIN VIVIES	BIAS	Z	-1948.142	-.5207027E-05	-1948.142	22.35445

ARC SET NUMBER 92:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MAWSON	BIAS	X	19.20751	-.1183876E-05	19.20751	13.66525
MAWSON	BIAS	Y	24.62025	0.3149864E-05	24.62025	13.66830
MAWSON	BIAS	Z	188.5202	0.4113073E-06	188.5202	19.09638

ARC SET NUMBER 93:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MEANOOK III	BIAS	X	104.1748	-.1047276E-04	104.1747	13.32719
MEANOOK III	BIAS	Y	18.19623	-.6313502E-05	18.19623	13.40079
MEANOOK III	BIAS	Z	-144.7643	-.1852972E-05	-144.7643	18.69274

ARC SET NUMBER 94:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

MEMAMBETSU	BIAS	X	-235.1450	-.2737297E-06	-235.1450	12.99600
MEMAMBETSU	BIAS	Y	143.3978	0.8823455E-05	143.3978	13.14351
MEMAMBETSU	BIAS	Z	74.74826	-.8839054E-05	74.74825	18.51439

ARC SET NUMBER 95:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIRNYY III	BIAS	X	-117.7029	0.6678840E-08	-117.7029	13.82064
MIRNYY III	BIAS	Y	46.63069	0.1252670E-05	46.63069	13.61633
MIRNYY III	BIAS	Z	-444.1922	-.1707794E-05	-444.1922	19.21619

ARC SET NUMBER 96:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MIZUSAWA	BIAS	X	-130.9452	0.2085181E-07	-130.9452	13.54046
MIZUSAWA	BIAS	Y	49.26716	0.3649526E-05	49.26716	13.56827
MIZUSAWA	BIAS	Z	-179.8992	-.5099687E-05	-179.8992	18.64595

ARC SET NUMBER 97:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOLODEZHNAYA	BIAS	X	-12.03301	-.1905268E-05	-12.03301	14.13998
MOLODEZHNAYA	BIAS	Y	-102.4745	0.1758716E-05	-102.4745	14.12305
MOLODEZHNAYA	BIAS	Z	-248.5183	-.1195252E-06	-248.5183	19.27526

ARC SET NUMBER 98:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MOULD BAY	BIAS	X	-28.02695	-.6333658E-05	-28.02696	13.35052
MOULD BAY	BIAS	Y	16.08190	-.2613903E-05	16.08190	13.37100
MOULD BAY	BIAS	Z	-48.04166	0.1362927E-05	-48.04166	18.74463

ARC SET NUMBER 99:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
MUNTINLUPA	BIAS	X	-50.97310	0.3573644E-05	-50.97309	14.28670
MUNTINLUPA	BIAS	Y	-37.40099	0.1358076E-04	-37.40097	14.61480
MUNTINLUPA	BIAS	Z	35.41411	-.5483830E-05	35.41411	19.73886

ARC SET NUMBER 100:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAGYCENK II	BIAS	X	0.7281031	0.1264974E-05	0.7281044	17.59923
NAGYCENK II	BIAS	Y	-4.430695	0.1835123E-05	-4.430694	17.59075
NAGYCENK II	BIAS	Z	-85.02205	-.4037504E-06	-85.02205	21.72577

ARC SET NUMBER 101:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NAMPULA	BIAS	X	-66.57191	-.1368233E-04	-66.57193	17.88191
NAMPULA	BIAS	Y	-12.33492	0.4720772E-05	-12.33492	18.33656
NAMPULA	BIAS	Z	251.8440	-.2228300E-04	251.8440	23.94242

ARC SET NUMBER 102:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NARSSARSSUAQ	BIAS	X	-348.5242	0.2837275E-05	-348.5242	15.20657
NARSSARSSUAQ	BIAS	Y	271.9251	-.5045081E-05	271.9251	15.15756
NARSSARSSUAQ	BIAS	Z	558.8473	-.3939000E-05	558.8473	20.05231

ARC SET NUMBER 103:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NEWPORT	BIAS	X	-30.10292	-.1203825E-04	-30.10293	12.96822
NEWPORT	BIAS	Y	116.1672	-.6912510E-05	116.1672	13.05001
NEWPORT	BIAS	Z	-119.6138	-.2257057E-05	-119.6138	18.33178

ARC SET NUMBER 104:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NIEMEGK	BIAS	X	-24.80630	0.2525764E-05	-24.80630	13.14190
NIEMEGK	BIAS	Y	-.3008886	0.6737325E-06	-.3008879	13.13883
NIEMEGK	BIAS	Z	-88.47667	-.2117358E-05	-88.47667	18.35933

ARC SET NUMBER 105:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVO KAZALINSK	BIAS	X	-96.23725	0.2382073E-05	-96.23725	13.40676
NOVO KAZALINSK	BIAS	Y	-159.7667	0.1362047E-05	-159.7667	13.40356
NOVO KAZALINSK	BIAS	Z	-.4117370E-01	0.1715671E-05	-.4117198E-01	18.73265

ARC SET NUMBER 106:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NOVOLAZAREVS II	BIAS	X	-258.5402	-.1623018E-06	-258.5402	20.08322
NOVOLAZAREVS II	BIAS	Y	78.31273	0.1717696E-05	78.31273	20.07151
NOVOLAZAREVS II	BIAS	Z	81.18105	-.6493313E-06	81.18105	21.85922

ARC SET NUMBER 107:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
NURMIJARVI	BIAS	X	287.6375	0.3319730E-05	287.6375	14.73519
NURMIJARVI	BIAS	Y	-103.4733	0.4170710E-06	-103.4733	14.76362
NURMIJARVI	BIAS	Z	93.67950	-.4715572E-05	93.67950	18.71644

ARC SET NUMBER 108:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
OTTAWA	BIAS	X	138.1910	0.7748167E-05	138.1910	13.54500
OTTAWA	BIAS	Y	-130.9727	-.7204386E-05	-130.9727	13.67618
OTTAWA	BIAS	Z	155.5695	-.5787560E-05	155.5695	18.92054

ARC SET NUMBER 109:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PAMATAI II	BIAS	X	-643.1583	0.2503318E-04	-643.1583	14.60061
PAMATAI II	BIAS	Y	-754.3520	0.1396523E-03	-754.3519	14.99730
PAMATAI II	BIAS	Z	-107.1261	-.9596820E-05	-107.1261	20.11435

ARC SET NUMBER 110:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PANAGYURISHTE	BIAS	X	-178.9868	0.8880739E-06	-178.9868	14.99198
PANAGYURISHTE	BIAS	Y	-170.1172	0.3664756E-06	-170.1172	14.98731
PANAGYURISHTE	BIAS	Z	-202.6836	0.1415135E-05	-202.6836	19.64140

ARC SET NUMBER 111:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

PARATUNKA	BIAS	X	-340.9449	-.7915399E-06	-340.9449	13.75741
PARATUNKA	BIAS	Y	213.5227	0.6821780E-05	213.5227	13.81167
PARATUNKA	BIAS	Z	234.3284	-.3184007E-06	234.3284	19.09524

ARC SET NUMBER 112:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PATRONY	BIAS	X	26.71238	0.3146653E-05	26.71239	14.04282
PATRONY	BIAS	Y	44.54648	0.6585414E-05	44.54649	14.08302
PATRONY	BIAS	Z	-62.53485	-.1329152E-05	-62.53485	19.28065

ARC SET NUMBER 113:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PILAR	BIAS	X	22.73771	-.5970843E-05	22.73771	15.17248
PILAR	BIAS	Y	-3.396406	0.1721004E-06	-3.396406	15.36402
PILAR	BIAS	Z	7.164576	-.1195323E-04	7.164564	20.14936

ARC SET NUMBER 114:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PLESHENITZI	BIAS	X	289.5603	0.1093094E-05	289.5604	13.45818
PLESHENITZI	BIAS	Y	171.8813	0.1045999E-05	171.8813	13.46383
PLESHENITZI	BIAS	Z	-136.9536	-.3389154E-05	-136.9536	18.59722

ARC SET NUMBER 115:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PODKAM TUNGUSKA	BIAS	X	56.49987	0.5117290E-05	56.49987	14.24442
PODKAM TUNGUSKA	BIAS	Y	16.23680	0.4314954E-05	16.23681	14.24783
PODKAM TUNGUSKA	BIAS	Z	-283.3641	-.3562926E-05	-283.3641	19.56422

ARC SET NUMBER 116:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT MORESBY	BIAS	X	23.19521	-.4739306E-05	23.19521	14.24166
PORT MORESBY	BIAS	Y	45.13945	0.2023251E-04	45.13947	15.30727
PORT MORESBY	BIAS	Z	244.5449	-.5992373E-05	244.5448	20.00594

ARC SET NUMBER 117:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-ALFRED I	BIAS	X	-793.6561	0.3606423E-06	-793.6561	15.80045
PORT-ALFRED I	BIAS	Y	1109.006	0.7701206E-05	1109.006	15.53400
PORT-ALFRED I	BIAS	Z	147.9836	-.1277095E-04	147.9836	21.89530

ARC SET NUMBER 118:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-AUX-FRANCA	BIAS	X	231.7729	-.2627565E-05	231.7729	13.92106
PORT-AUX-FRANCA	BIAS	Y	201.3055	0.1741745E-05	201.3055	14.27030
PORT-AUX-FRANCA	BIAS	Z	666.5638	-.2492650E-05	666.5638	19.54043

ARC SET NUMBER 119:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RESOLUTE BAY	BIAS	X	39.94308	-.4146328E-05	39.94307	13.35268
RESOLUTE BAY	BIAS	Y	37.13070	-.6443672E-05	37.13069	13.41187
RESOLUTE BAY	BIAS	Z	64.00043	0.1415777E-05	64.00043	18.75832

ARC SET NUMBER 120:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RUDE SKOV	BIAS	X	38.93525	0.1136916E-05	38.93526	16.01524
RUDE SKOV	BIAS	Y	-8.982404	0.3964484E-07	-8.982404	16.01850
RUDE SKOV	BIAS	Z	-60.04237	-.1160020E-05	-60.04237	20.48292

ARC SET NUMBER 121:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SABHAWALA II	BIAS	X	-2.943160	-.1423292E-06	-2.943161	13.58380
SABHAWALA II	BIAS	Y	-64.78901	0.4993268E-06	-64.78900	13.72499
SABHAWALA II	BIAS	Z	28.39841	-.7555133E-06	28.39841	18.86754

ARC SET NUMBER 122:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN JUAN II	BIAS	X	-43.07889	0.1529115E-04	-43.07888	14.09741
SAN JUAN II	BIAS	Y	190.4412	0.5291368E-05	190.4412	14.53700
SAN JUAN II	BIAS	Z	206.1925	-.1765593E-04	206.1925	19.40532

ARC SET NUMBER 123:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN PABLO	BIAS	X	26.77244	0.9735233E-05	26.77245	15.43539
SAN PABLO	BIAS	Y	10.00661	-.1756480E-05	10.00661	15.44075
SAN PABLO	BIAS	Z	-66.83379	-.5880034E-06	-66.83379	20.17624

ARC SET NUMBER 124:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SANAE II	BIAS	X	-38.55604	-.4768042E-05	-38.55604	14.63118
SANAE II	BIAS	Y	-78.00608	0.6387833E-05	-78.00608	14.49482
SANAE II	BIAS	Z	40.99817	-.5263351E-05	40.99817	20.07548

ARC SET NUMBER 125:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHESHAN	BIAS	X	-221.5375	0.4098640E-05	-221.5375	13.92701
SHESHAN	BIAS	Y	67.01949	0.4074866E-05	67.01949	13.93408
SHESHAN	BIAS	Z	232.4281	0.1174126E-05	232.4281	18.95293

ARC SET NUMBER 126:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SHILLONG	BIAS	X	-85.04548	0.2322327E-07	-85.04548	14.89798
SHILLONG	BIAS	Y	-76.20953	-.5946776E-05	-76.20954	14.73852
SHILLONG	BIAS	Z	-349.7986	0.1104797E-05	-349.7986	19.95018

ARC SET NUMBER 127:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SITKA III	BIAS	X	6.881594	-.1578021E-04	6.881578	14.21293
SITKA III	BIAS	Y	-13.23451	-.1892259E-05	-13.23451	14.17761
SITKA III	BIAS	Z	-75.18913	-.2534537E-05	-75.18914	19.41658

ARC SET NUMBER 128:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SODANKYLA	BIAS	X	-161.8792	0.4506277E-05	-161.8792	13.23925

SODANKYLA	BIAS	Y	-105.8724	0.2194513E-06	-105.8724	13.29360
SODANKYLA	BIAS	Z	-599.1668	-.2856044E-05	-599.1668	18.57477

ARC SET NUMBER 129:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SOUTH GEORGIA	BIAS	X	-74.95642	-.1531652E-05	-74.95642	17.56117
SOUTH GEORGIA	BIAS	Y	-364.7648	-.1274439E-05	-364.7648	17.56679
SOUTH GEORGIA	BIAS	Z	99.61907	-.1431192E-05	99.61907	21.72204

ARC SET NUMBER 130:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ST JOHN S	BIAS	X	48.59028	0.2819551E-05	48.59028	14.16130
ST JOHN S	BIAS	Y	29.13002	-.1252635E-04	29.13000	13.94731
ST JOHN S	BIAS	Z	3.879458	0.4499553E-05	3.879462	19.52721

ARC SET NUMBER 131:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEKOLINIY	BIAS	X	-279.1182	0.2584924E-06	-279.1182	14.22264
STEKOLINIY	BIAS	Y	-753.8174	0.7749056E-05	-753.8173	14.34490
STEKOLINIY	BIAS	Z	51.35039	-.4686811E-05	51.35038	19.60934

ARC SET NUMBER 132:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEPANOVKA III	BIAS	X	-96.29539	0.1779057E-05	-96.29539	13.50302
STEPANOVKA III	BIAS	Y	-701.0080	-.4706145E-06	-701.0080	13.49569
STEPANOVKA III	BIAS	Z	66.43540	-.5391338E-07	66.43540	18.62992

ARC SET NUMBER 133:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SURLARI II	BIAS	X	20.30130	0.1577335E-05	20.30130	13.24434
SURLARI II	BIAS	Y	-34.98176	-.1161589E-06	-34.98176	13.22930
SURLARI II	BIAS	Z	-67.63206	0.2205907E-05	-67.63206	18.43438

ARC SET NUMBER 134:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SYOWA BASE II	BIAS	X	-34.14302	-.1579958E-05	-34.14302	14.83743
SYOWA BASE II	BIAS	Y	-54.61767	0.1842317E-05	-54.61767	14.78575
SYOWA BASE II	BIAS	Z	7.505793	-.5168430E-07	7.505793	19.89009

ARC SET NUMBER 135:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TAMANRASSET IV	BIAS	X	50.47007	0.5277679E-05	50.47007	15.55447
TAMANRASSET IV	BIAS	Y	-238.0399	0.5199903E-05	-238.0399	15.57343
TAMANRASSET IV	BIAS	Z	-14.23057	-.1596856E-04	-14.23058	20.83707

ARC SET NUMBER 136:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TANGERANG III	BIAS	X	29.05500	-.2873552E-05	29.05500	15.23538
TANGERANG III	BIAS	Y	-27.99468	0.4695904E-05	-27.99467	15.53467
TANGERANG III	BIAS	Z	61.28162	-.1488387E-04	61.28161	20.42287

ARC SET NUMBER 137:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TATUOCA III	BIAS	X	68.33329	0.5288041E-05	68.33330	16.73052
TATUOCA III	BIAS	Y	-97.65942	-.7330343E-05	-97.65943	17.41712
TATUOCA III	BIAS	Z	74.04391	-.8099799E-05	74.04391	22.02975

ARC SET NUMBER 138:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE	BIAS	X	-282.5776	0.2664523E-06	-282.5776	15.19690
THULE	BIAS	Y	232.0160	-.5547155E-05	232.0160	15.18263
THULE	BIAS	Z	-68.38238	-.7836232E-06	-68.38238	20.00440

ARC SET NUMBER 139:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE III	BIAS	X	-57.90830	0.1629516E-06	-57.90830	14.49754
THULE III	BIAS	Y	95.53957	-.5378518E-05	95.53956	14.48211
THULE III	BIAS	Z	22.42690	-.7632326E-06	22.42690	19.47899

ARC SET NUMBER 140:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIHANY II	BIAS	X	-16.14991	0.1446950E-05	-16.14991	14.40159
TIHANY II	BIAS	Y	3.126612	0.2343875E-05	3.126615	14.38282
TIHANY II	BIAS	Z	-51.35369	0.1387594E-06	-51.35369	20.39791

ARC SET NUMBER 141:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TIKSI VI	BIAS	X	-90.03216	0.8302919E-07	-90.03216	14.65268
TIKSI VI	BIAS	Y	-154.5386	0.1773525E-05	-154.5386	14.65261
TIKSI VI	BIAS	Z	-113.7731	-.3252014E-05	-113.7731	19.77299

ARC SET NUMBER 142:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TOLEDO III	BIAS	X	16.02033	0.1141197E-05	16.02033	17.51126
TOLEDO III	BIAS	Y	3.441209	0.3452370E-07	3.441209	17.51187
TOLEDO III	BIAS	Z	-11.24872	-.1942074E-06	-11.24872	21.61379

ARC SET NUMBER 143:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TRIVANDRUM	BIAS	X	290.3960	0.7226286E-06	290.3960	13.88634
TRIVANDRUM	BIAS	Y	201.0125	0.1208001E-05	201.0125	14.44995
TRIVANDRUM	BIAS	Z	210.4917	-.1025764E-04	210.4917	19.22191

ARC SET NUMBER 144:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TROMSO	BIAS	X	111.9601	0.4471726E-05	111.9601	13.25529
TROMSO	BIAS	Y	-408.3260	-.1110716E-06	-408.3260	13.32493
TROMSO	BIAS	Z	102.1842	-.1523137E-05	102.1842	18.60720

ARC SET NUMBER 145:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TSUMEB	BIAS	X	62.81214	0.4034399E-06	62.81214	13.95494
TSUMEB	BIAS	Y	-50.88001	0.1326267E-05	-50.88001	14.29719

TSÙMEB	BIAS	Z	76.74324	-.2025736E-05	76.74324	19.47745

ARC SET NUMBER 146:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TUCSON	BIAS	X	-51.00858	-.1400921E-04	-51.00860	13.14575
TUCSON	BIAS	Y	-57.98654	-.3022439E-04	-57.98657	13.24284
TUCSON	BIAS	Z	127.0371	-.5256257E-05	127.0371	18.53126

ARC SET NUMBER 147:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
TULSA II	BIAS	X	-21.72039	-.5882569E-05	-21.72040	30.51294
TULSA II	BIAS	Y	-43.39321	-.2415361E-04	-43.39323	30.40049
TULSA II	BIAS	Z	41.63092	0.3248309E-04	41.63095	33.37812

ARC SET NUMBER 148:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
UJJAIN	BIAS	X	-224.9914	0.4734991E-06	-224.9914	17.48574
UJJAIN	BIAS	Y	181.5132	0.5044086E-07	181.5132	17.49718
UJJAIN	BIAS	Z	278.5992	-.9668864E-06	278.5992	21.56684

ARC SET NUMBER 149:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
URUMQI	BIAS	X	-47.54213	0.3792647E-06	-47.54213	15.19774
URUMQI	BIAS	Y	-2.717604	-.1040571E-05	-2.717605	15.15704
URUMQI	BIAS	Z	64.64132	-.8894412E-05	64.64131	20.06636

ARC SET NUMBER 150:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VALENTIA	BIAS	X	129.7958	0.4439892E-05	129.7958	13.20160
VALENTIA	BIAS	Y	-66.30854	0.4598874E-05	-66.30854	13.24868
VALENTIA	BIAS	Z	21.87703	0.1008761E-05	21.87703	18.58907

ARC SET NUMBER 151:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VANNOVSKAYA II	BIAS	X	179.8148	0.4118712E-05	179.8148	13.82172
VANNOVSKAYA II	BIAS	Y	96.07542	0.5927268E-05	96.07543	13.68602
VANNOVSKAYA II	BIAS	Z	71.61753	-.3965754E-05	71.61752	18.98189

ARC SET NUMBER 152:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VASSOURAS	BIAS	X	99.86852	-.6649010E-05	99.86851	14.54128
VASSOURAS	BIAS	Y	-78.27584	-.4928906E-06	-78.27584	15.25465
VASSOURAS	BIAS	Z	-55.19207	-.8216972E-05	-55.19208	20.17068

ARC SET NUMBER 153:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VICTORIA	BIAS	X	39.80151	-.1752063E-04	39.80149	13.44541
VICTORIA	BIAS	Y	9.490424	-.9880912E-05	9.490414	13.50454
VICTORIA	BIAS	Z	-329.0784	-.3069152E-05	-329.0784	18.78442

ARC SET NUMBER 154:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

VOSTOK	BIAS	X	43.70653	-.6083691E-07	43.70653	13.96726
VOSTOK	BIAS	Y	62.20914	0.6237903E-05	62.20915	13.94834
VOSTOK	BIAS	Z	-1.465902	-.4456657E-05	-1.465907	19.39783

ARC SET NUMBER 155:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
VOYEYKOVO	BIAS	X	90.28167	0.1854207E-05	90.28167	13.84210
VOYEYKOVO	BIAS	Y	20.03747	0.9459234E-06	20.03747	13.85371
VOYEYKOVO	BIAS	Z	-276.5273	-.3354957E-05	-276.5273	18.88731

ARC SET NUMBER 156:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WIEN KOBENZL	BIAS	X	30.59309	0.1851229E-05	30.59309	13.15950
WIEN KOBENZL	BIAS	Y	-3.628867	0.2229517E-05	-3.628865	13.14005
WIEN KOBENZL	BIAS	Z	8.199038	-.7961979E-06	8.199037	18.34339

ARC SET NUMBER 157:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WINGST	BIAS	X	58.90265	0.2686838E-05	58.90266	13.44587
WINGST	BIAS	Y	42.68602	0.2421999E-07	42.68602	13.45064
WINGST	BIAS	Z	-79.89400	-.1591585E-05	-79.89400	18.58239

ARC SET NUMBER 158:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WITTEVEEN	BIAS	X	30.36998	0.3376643E-05	30.36999	13.16267
WITTEVEEN	BIAS	Y	-1.489431	0.6317880E-07	-1.489431	13.16708
WITTEVEEN	BIAS	Z	-86.31675	-.1147153E-05	-86.31675	18.39181

ARC SET NUMBER 159:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
WUHAN	BIAS	X	70.39812	0.9173813E-05	70.39813	14.29132
WUHAN	BIAS	Y	16.73507	0.8340375E-05	16.73508	14.29169
WUHAN	BIAS	Z	-37.62945	-.3096659E-05	-37.62945	19.41866

ARC SET NUMBER 160:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YAKUTSK II	BIAS	X	81.80277	0.5505963E-06	81.80277	13.98317
YAKUTSK II	BIAS	Y	-1178.860	-.1606667E-06	-1178.860	14.00281
YAKUTSK II	BIAS	Z	110.1071	-.2209419E-05	110.1071	19.20110

ARC SET NUMBER 161:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR	BIAS	X	-265.6007	0.3366374E-07	-265.6007	17.51064
YANGI-BAZAR	BIAS	Y	41.24561	-.2492234E-06	41.24561	17.51496
YANGI-BAZAR	BIAS	Z	-110.4694	-.1156242E-06	-110.4694	21.60774

ARC SET NUMBER 162:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
YANGI-BAZAR II	BIAS	X	-262.0571	0.1321565E-05	-262.0571	15.09618
YANGI-BAZAR II	BIAS	Y	52.10342	-.1423611E-05	52.10342	15.27853
YANGI-BAZAR II	BIAS	Z	-67.53266	0.1275250E-06	-67.53266	20.20544

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'ARC SET NUMBER 163:
        LABEL                     OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                     ---------      ------------    ------------    --------------
YELLOW-KNIFE      BIAS  X         402.1669      -.5603825E-05     402.1669         13.56394
YELLOW-KNIFE      BIAS  Y        -208.5386      -.3573177E-05    -208.5386         13.59271
YELLOW-KNIFE      BIAS  Z         130.0634      -.7848745E-06     130.0634         18.82284

ARC SET NUMBER 164:
        LABEL                     OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                     ---------      ------------    ------------    --------------
YUZHNO SAKH IV    BIAS  X        -76.12272      0.2635963E-06    -76.12272         14.35836
YUZHNO SAKH IV    BIAS  Y        -58.41269      0.2869544E-05    -58.41268         14.38501
YUZHNO SAKH IV    BIAS  Z         88.47736      -.4378639E-05     88.47735         19.25035

ARC SET NUMBER 165:
        LABEL                     OLD VALUE      DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
        -----                     ---------      ------------    ------------    --------------
ZAYMISHCHE III    BIAS  X        -114.6370      0.8762774E-06    -114.6370         13.30937
ZAYMISHCHE III    BIAS  Y        -113.3199      0.2592596E-05    -113.3199         13.25965
ZAYMISHCHE III    BIAS  Z         129.7007      -.1259445E-05     129.7007         18.63238

--LAST ARC-SET PROCESSED.  TOTAL NUMBER OF ARC-SETS EQUALS:   165


 GENERATING COMMON PARAMETER MATRIX STATISTICS:
*** ND =     2IER = 0   ** STATC **

-- In STATC. Input sigmas and matrix from unit 15
GREADO INPUTING RESTART DATA FROM UNIT 15

DIMENSION VARIABLES READ FROM UNIT 15:
   IWIO = 0      INQL= 1   INTMTH= 1  EXTMTH = 0
   PEWP = 67.0     IVLPG = 1
   IWLPG = 1  NMAX =    13   NMEX =     1
   NMINI=  1   NMINE=  1   NCOM =  322
   MA =  3  MW =          0    NTIMI =  120
   NPSNI =     0  NTIME =    0  NPSNE =     0
   NOBS =  165   NSAT =    0    NSRV =   8
   MODEXT flag =  0
READING D MATRIX FROM UNIT 15
```

ITERATION # 3 ARC PARAMETER SOLUTIONS PLUS STATISTICS:

ARC SET NUMBER 1:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ADDIS ABABA II	BIAS X	578.5353	0.1545430E-03	578.5354	115.5310
ADDIS ABABA II	BIAS Y	8.854496	0.3501597E-01	8.889512	265.8217
ADDIS ABABA II	BIAS Z	157.5517	0.1640863	157.7157	363.9327

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 2:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALERT	BIAS X	31.28190	0.7145332E-02	31.28905	107.9836
ALERT	BIAS Y	-83.12652	-.7096295E-02	-83.13362	89.59909
ALERT	BIAS Z	-93.25276	0.1205323E-01	-93.24071	132.8127

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 3:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALIBAG III	BIAS X	-165.5777	0.1133753E-01	-165.5663	124.3621
ALIBAG III	BIAS Y	463.8729	0.2483031E-01	463.8978	156.7715
ALIBAG III	BIAS Z	354.1847	0.8471326E-02	354.1932	181.2091

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 4:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMA ATA	BIAS X	279.1220	0.6750347E-02	279.1288	112.4849
ALMA ATA	BIAS Y	19.33935	-.3383940E-01	19.30551	124.4462
ALMA ATA	BIAS Z	-306.1297	0.3345252E-01	-306.0963	174.8911

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 5:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ALMERIA	BIAS X	40.14538	-.8745477E-02	40.13663	49.62063
ALMERIA	BIAS Y	49.20714	-.6099316E-02	49.20104	40.19308
ALMERIA	BIAS Z	-24.89178	-.8310253E-03	-24.89261	57.70879

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 6:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AMATSIA	BIAS X	53.41298	-.6115882E-01	53.35182	152.0184
AMATSIA	BIAS Y	56.16428	-.1258921E-01	56.15169	107.9863
AMATSIA	BIAS Z	281.2872	0.3413629E-01	281.3213	91.27297

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 7:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
APIA IV	BIAS X	578.5387	0.1212075	578.6599	251.5876
APIA IV	BIAS Y	-98.89732	0.3936721	-98.50365	274.7085
APIA IV	BIAS Z	41.88782	0.4179633	42.30578	373.8693

Summary of ARC-ARC correlations for arc-set # 7:
Correlations > RCUT = 0.30

ARC parameter #1		ARC parameter #2	
APIA IV	BIAS X	APIA IV	BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 8:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
AQUILA	BIAS X	14.65555	-.9183944E-03	14.65463	33.43801
AQUILA	BIAS Y	48.13434	-.2707836E-06	48.13434	29.70261
AQUILA	BIAS Z	-2.465920	0.2623967E-02	-2.463296	41.08439

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 9:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARCTOWSKI	BIAS X	-172.5598	0.6479412E-02	-172.5534	43.48463
ARCTOWSKI	BIAS Y	242.7067	0.5840454E-03	242.7073	40.58136
ARCTOWSKI	BIAS Z	609.4233	-.1489904E-02	609.4218	52.33335

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 10:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
ARTI	BIAS X	177.2809	0.7881927E-02	177.2888	116.3067
ARTI	BIAS Y	-300.6761	0.1794850E-01	-300.6582	95.57193
ARTI	BIAS Z	653.9839	0.4517076E-01	654.0291	155.8567

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 11:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BAKER LAKE VII	BIAS X	136.4120	-.1429639E-01	136.3977	79.93175
BAKER LAKE VII	BIAS Y	-151.1583	0.1836779E-01	-151.1399	103.6490
BAKER LAKE VII	BIAS Z	116.8926	0.5806492E-02	116.8984	139.6968

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 12:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BANGUI IV	BIAS X	-108.7094	-.2083333E-01	-108.7303	108.5047
BANGUI IV	BIAS Y	10.08766	-.2363367E-01	10.06403	157.9437
BANGUI IV	BIAS Z	281.7937	-.1265431E-01	281.7810	201.4964

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 13:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BARROW IV	BIAS X	19.70434	0.2415690E-01	19.72850	112.3366
BARROW IV	BIAS Y	-76.54517	0.1622906E-02	-76.54355	211.0064
BARROW IV	BIAS Z	141.0681	-.2200604E-02	141.0659	213.6734

Summary of ARC-ARC correlations for arc-set # 13:
Correlations > RCUT = 0.30

ARC parameter #1		ARC parameter #2	
BARROW IV	BIAS X	BARROW IV	BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 14:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BEIJING	BIAS X	680.2564	0.1995006E-01	680.2763	134.9397
BEIJING	BIAS Y	-413.4398	-.3967359E-01	-413.4795	126.3862
BEIJING	BIAS Z	667.8550	0.1392834	667.9943	194.5231

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 15:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BELSK	BIAS X	176.3805	-.3562047E-04	176.3805	34.46171
BELSK	BIAS Y	198.6038	-.1290678E-01	198.5909	41.02965
BELSK	BIAS Z	343.9670	-.3732593E-03	343.9666	50.60703

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 16:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BJORNOYA II	BIAS X	-68.69302	0.1790825E-02	-68.69123	83.79805
BJORNOYA II	BIAS Y	132.9623	0.1426297E-01	132.9766	91.13441
BJORNOYA II	BIAS Z	-32.31355	-.5558795E-02	-32.31911	103.7583

Summary of ARC-ARC correlations for arc-set # 16:
Correlations > RCUT = 0.30

ARC parameter #1		ARC parameter #2	
BJORNOYA II	BIAS X	BJORNOYA II	BIAS Y
BJORNOYA II	BIAS X	BJORNOYA II	BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 17:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
BOROK	BIAS X	2.343940	0.1797638E-01	2.361917	66.39930
BOROK	BIAS Y	29.23134	0.1318801E-01	29.24453	74.13231
BOROK	BIAS Z	-239.1351	0.2878089E-02	-239.1322	80.08634

Summary of ARC-ARC correlations for arc-set # 17:
Correlations > RCUT = 0.30

ARC parameter #1		ARC parameter #2	
BOROK	BIAS Y	BOROK	BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

```
ARC SET NUMBER  18:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
BOULDER         BIAS  X     68.93494      -.2188543E-02    68.93276        43.82099
BOULDER         BIAS  Y     34.89130      0.5607699E-02    34.89690        35.96088
BOULDER         BIAS  Z   -111.5835       0.1612694E-01  -111.5674         49.89630
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  19:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
BRORFELDE II    BIAS  X     73.08236      -.4366822E-02    73.07800        36.79284
BRORFELDE II    BIAS  Y    -22.14781      -.5170515E-02   -22.15298        36.19031
BRORFELDE II    BIAS  Z   -163.5739       0.8156462E-02  -163.5657         51.63269
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  20:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
BUDKOV          BIAS  X    -4.097095      -.1678039E-02   -4.098773        34.49421
BUDKOV          BIAS  Y     19.13779      -.6991651E-02    19.13080        34.38863
BUDKOV          BIAS  Z    -26.91350      0.6928528E-02   -26.90657        45.08547
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  21:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
CAMBRIDGE BAY   BIAS  X     59.27382      -.9110465E-03    59.27291        91.60397
CAMBRIDGE BAY   BIAS  Y   -166.5953       0.2208107E-01  -166.5732         97.72179
CAMBRIDGE BAY   BIAS  Z    314.0986       -.6154158E-02   314.0924        145.9502
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  22:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
CANARIAS        BIAS  X   -460.2202       -.1411977E-01  -460.2343         70.43426
CANARIAS        BIAS  Y     75.36462      0.1585811E-01    75.38048       103.4280
CANARIAS        BIAS  Z  -1106.943        0.2097867E-01 -1106.922         115.4122
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  23:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
CANBERRA        BIAS  X     93.97632      -.9567990E-01    93.88064       212.7201
CANBERRA        BIAS  Y    303.6567       0.2990852E-01   303.6866        165.4057
CANBERRA        BIAS  Z   -153.6283       -.6167499E-01  -153.6899        270.8426
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  24:
      LABEL                 OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
      -----                 ---------     ------------    ------------    --------------
CAPE WELLEN III BIAS  X    -22.31261      0.2292658E-01   -22.28968       159.6803
CAPE WELLEN III BIAS  Y     88.76797      0.1172967E-01    88.77970       212.5051
```

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CAPE WELLEN III  BIAS  Z     61.80766        -.2832876E-02    '61.80483        254.4814

  Summary of ARC-ARC correlations for arc-set #  24:
              Correlations > RCUT = 0.30
      ARC parameter #1               ARC parameter #2
      ----------------               ----------------
  CAPE WELLEN III  BIAS  X   CAPE WELLEN III  BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  25:
          LABEL               OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
          -----               ---------      ------------     ------------     --------------
CHAMBON FORETII  BIAS  X    -66.99644       0.1374893E-02    -66.99506         35.35303
CHAMBON FORETII  BIAS  Y     11.02956       0.1187252E-02     11.03074         30.75794
CHAMBON FORETII  BIAS  Z     123.2452       0.6162631E-02     123.2513         47.41021
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  26:
          LABEL               OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
          -----               ---------      ------------     ------------     --------------
CHANGCHUN        BIAS  X    -33.41914       0.2682504E-01    -33.39232         134.5765
CHANGCHUN        BIAS  Y    -185.9390       -.8019359E-01    -186.0192         128.1604
CHANGCHUN        BIAS  Z     158.3045       0.9486129E-01     158.3994         172.0840
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  27:
          LABEL               OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
          -----               ---------      ------------     ------------     --------------
CHELYUSKIN IV    BIAS  X    -126.5525       0.2272577E-01    -126.5298         148.8542
CHELYUSKIN IV    BIAS  Y    -9.379075       -.1353334E-01    -9.392609         194.0176
CHELYUSKIN IV    BIAS  Z     159.6557       0.1800980E-01     159.6738         313.3238
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  28:
          LABEL               OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
          -----               ---------      ------------     ------------     --------------
COIMBRA          BIAS  X     76.74610       -.8080752E-02     76.73802         48.50135
COIMBRA          BIAS  Y    -5.638706       0.2563263E-03    -5.638449         43.48862
COIMBRA          BIAS  Z    -3.349440       -.1075639E-02    -3.350515         54.98078
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  29:
          LABEL               OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
          -----               ---------      ------------     ------------     --------------
COLLEGE III      BIAS  X     37.32946       0.1558929E-02     37.33102         121.1609
COLLEGE III      BIAS  Y    -71.54871       0.5762176E-02    -71.54295         166.0678
COLLEGE III      BIAS  Z     11.40946       -.2190412E-01     11.38756         155.6394

  Summary of ARC-ARC correlations for arc-set #  29:
              Correlations > RCUT = 0.30
      ARC parameter #1               ARC parameter #2
      ----------------               ----------------
  COLLEGE III      BIAS  X   COLLEGE III      BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  30:
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         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DAVIS              BIAS  X     -301.0185       -.3166478E-01   -301.0501         110.8176
DAVIS              BIAS  Y      351.0229       0.3758466E-03    351.0233         187.4403
DAVIS              BIAS  Z      69.28929       0.3330503E-01    69.32259         184.3598
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  31:
         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DEL RIO            BIAS  X      303.0034       0.4608081E-03    303.0039         32.05533
DEL RIO            BIAS  Y      80.31216       0.4521273E-02    80.31669         29.66126
DEL RIO            BIAS  Z     -410.9300       0.6845895E-02   -410.9232         37.97906
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  32:
         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DIKSON V           BIAS  X     -131.6876       0.3631785E-02   -131.6840         139.8598
DIKSON V           BIAS  Y      26.89533       -.2298677E-01    26.87234         163.0927
DIKSON V           BIAS  Z     -49.45678       0.1893055E-01   -49.43785         258.4615

  Summary of ARC-ARC correlations for arc-set #  32:
              Correlations > RCUT = 0.30
      ARC parameter #1           ARC parameter #2
      ----------------           ----------------
  DIKSON V          BIAS  Y   DIKSON V          BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  33:
         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DOMBAS III         BIAS  X     -85.36352       -.8804311E-02   -85.37232         45.12296
DOMBAS III         BIAS  Y      31.04078       0.3908376E-03    31.04117         43.40691
DOMBAS III         BIAS  Z     -270.9565       0.9419843E-03   -270.9556         57.72189
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  34:
         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DOURBES            BIAS  X      11.14555       -.1028761E-03    11.14544         36.44569
DOURBES            BIAS  Y      17.39321       -.1447362E-03    17.39307         31.80948
DOURBES            BIAS  Z      92.72612       0.9013514E-02    92.73513         48.68285
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  35:
         LABEL                    OLD VALUE      DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                    ---------      ------------    ------------     --------------
DUMONT DURVILLE    BIAS  X     -317.5193       -.4563678E-02   -317.5239         152.8437
DUMONT DURVILLE    BIAS  Y     -520.5248       0.3837546E-01   -520.4864         167.2950
DUMONT DURVILLE    BIAS  Z     -2886.591       0.2189325E-02   -2886.589         94.60802

  Summary of ARC-ARC correlations for arc-set #  35:
              Correlations > RCUT = 0.30
      ARC parameter #1           ARC parameter #2
      ----------------           ----------------
```

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  DUMONT DURVILLE  BIAS  X   DUMONT DURVILLE  BIAS  Y
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  36:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
DUSHETI II        BIAS  X      -129.6414      -.1073155E-02   -129.6425          95.54469
DUSHETI II        BIAS  Y       55.80261      -.5633514E-02    55.79698          112.7254
DUSHETI II        BIAS  Z      -89.07233      -.5087183E-01   -89.12320          155.0636

  Summary of ARC-ARC correlations for arc-set #  36:
              Correlations > RCUT = 0.30
     ARC parameter #1              ARC parameter #2
     ----------------              ----------------
  DUSHETI II        BIAS  Y   DUSHETI II        BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  37:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
DYMER             BIAS  X       90.20441      0.7029961E-02    90.21144          42.64407
DYMER             BIAS  Y       164.5332      -.1382237E-01    164.5194          63.69277
DYMER             BIAS  Z       168.1287      -.1819287E-01    168.1105          72.73767
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  38:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
ESKDALEMUIR       BIAS  X      -24.23564      -.4492715E-02   -24.24013          46.50539
ESKDALEMUIR       BIAS  Y       19.62786      0.1516802E-02    19.62938          42.17246
ESKDALEMUIR       BIAS  Z      -89.13587      0.7883136E-02   -89.12799          59.85665
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  39:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
EYREWELL          BIAS  X       323.4489      -.8201515E-01    323.3669          199.5064
EYREWELL          BIAS  Y       247.3780      0.1559506E-01    247.3936          183.3248
EYREWELL          BIAS  Z      -224.1372      -.8555973E-02   -224.1457          330.0670
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  40:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
FORT CHURCHI II   BIAS  X      -121.2370      -.1797851E-01   -121.2549          74.76887
FORT CHURCHI II   BIAS  Y      -95.94888      0.1166736E-01   -95.93721          97.93740
FORT CHURCHI II   BIAS  Z      -50.80364      0.1692089E-01   -50.78672          141.0112
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  41:
        LABEL                    OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
        -----                    ---------     ------------    ------------     --------------
FREDERICKSBURG    BIAS  X       27.57458      0.5757411E-02    27.58034          72.26907
FREDERICKSBURG    BIAS  Y      -100.3360      -.1054416E-01   -100.3466          69.02920
FREDERICKSBURG    BIAS  Z       170.2355      -.9361343E-02    170.2261          87.46985
  *- No arc/arc correlations are greater than  0.30for this arcset.
```

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 42:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
FURSTNFELDBRUCK	BIAS	X	8.889680	-.6168669E-03	8.889063	32.43134
FURSTNFELDBRUCK	BIAS	Y	37.83101	-.3961766E-02	37.82704	31.06430
FURSTNFELDBRUCK	BIAS	Z	24.21379	0.7725832E-02	24.22152	43.10849

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 43:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GNANGARA	BIAS	X	-137.2170	-.1893796E-01	-137.2359	121.8192
GNANGARA	BIAS	Y	-287.5609	-.5009122E-01	-287.6110	226.3345
GNANGARA	BIAS	Z	-226.5283	0.3955844E-01	-226.4887	483.3051

Summary of ARC-ARC correlations for arc-set # 43:
Correlations > RCUT = 0.30

ARC parameter #1			ARC parameter #2		
GNANGARA	BIAS	X	GNANGARA	BIAS	Y
GNANGARA	BIAS	X	GNANGARA	BIAS	Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 44:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GODHAVN II	BIAS	X	399.0355	-.9242872E-02	399.0263	89.92752
GODHAVN II	BIAS	Y	-419.1062	-.1003278E-01	-419.1163	81.19260
GODHAVN II	BIAS	Z	630.3352	0.9718014E-03	630.3362	111.2969

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 45:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GORNOTAYEZHN II	BIAS	X	86.26849	0.4867766E-01	86.31716	135.5089
GORNOTAYEZHN II	BIAS	Y	-130.3888	-.8280133E-01	-130.4716	126.6329
GORNOTAYEZHN II	BIAS	Z	-229.9144	0.4201909E-01	-229.8724	141.1694

Summary of ARC-ARC correlations for arc-set # 45:
Correlations > RCUT = 0.30

ARC parameter #1			ARC parameter #2		
GORNOTAYEZHN II	BIAS	X	GORNOTAYEZHN II	BIAS	Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 46:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GREAT WHALE RII	BIAS	X	161.8603	-.3568466E-02	161.8567	73.13899
GREAT WHALE RII	BIAS	Y	149.9854	-.6870758E-02	149.9786	86.21645
GREAT WHALE RII	BIAS	Z	-34.38641	0.1743423E-01	-34.36898	149.8262

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 47:

LABEL	OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GROCKA	BIAS	X	12.88556	-.7858820E-02	12.87770	38.55887
GROCKA	BIAS	Y	-41.86513	-.1000336E-01	-41.87514	34.84059
GROCKA	BIAS	Z	-88.77490	-.1062082E-03	-88.77501	51.18952

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 48:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUAM	BIAS	X	141.0267	-.5517019E-01	140.9715	118.3706
GUAM	BIAS	Y	-72.00910	-.5102176E-01	-72.06013	296.9019
GUAM	BIAS	Z	-484.6923	0.2992088	-484.3931	348.1996

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 49:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
GUANGZHOU II	BIAS	X	380.8266	0.5548958E-01	380.8821	173.5682
GUANGZHOU II	BIAS	Y	-34.36685	-.1135441	-34.48040	202.2590
GUANGZHOU II	BIAS	Z	-90.01038	0.4538971E-01	-89.96499	219.8093

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 50:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTEBEESTHOEK	BIAS	X	52.18874	-.4334318E-02	52.18441	60.43403
HARTEBEESTHOEK	BIAS	Y	-1.463618	0.6254700E-02	-1.457363	65.40855
HARTEBEESTHOEK	BIAS	Z	69.76802	-.5534181E-03	69.76746	85.99876

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 51:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HARTLAND	BIAS	X	-68.87851	0.2312087E-03	-68.87828	43.64212
HARTLAND	BIAS	Y	52.99669	0.2366489E-02	52.99906	38.82604
HARTLAND	BIAS	Z	55.75784	0.5904518E-02	55.76375	52.56264

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 52:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HATIZYO II	BIAS	X	135.7908	0.4223194E-01	135.8330	105.0774
HATIZYO II	BIAS	Y	-707.6114	0.7239249E-02	-707.6042	104.8794
HATIZYO II	BIAS	Z	250.3157	-.4303382E-01	250.2727	105.1807

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 53:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEISS ISLAND II	BIAS	X	97.01185	-.5592945E-03	97.01129	110.6144
HEISS ISLAND II	BIAS	Y	-503.3969	0.4121732E-02	-503.3927	164.1163
HEISS ISLAND II	BIAS	Z	1175.811	0.2084593E-01	1175.832	200.5836

Summary of ARC-ARC correlations for arc-set # 53:

Correlations > RCUT = 0.30

ARC parameter #1	ARC parameter #2
HEISS ISLAND II BIAS Y	HEISS ISLAND II BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 54:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HEL III	BIAS X	87.04530	-.3848517E-03	87.04491	33.63028
HEL III	BIAS Y	-78.26833	-.9734891E-02	-78.27807	38.22690
HEL III	BIAS Z	-41.47115	0.2865762E-02	-41.46828	49.59804

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 55:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HERMANUS	BIAS X	24.55308	0.1608747E-02	24.55469	64.63863
HERMANUS	BIAS Y	55.30816	0.4103915E-02	55.31227	86.21821
HERMANUS	BIAS Z	20.50680	0.1414132E-01	20.52094	90.16983

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 56:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HONOLULU IV	BIAS X	-402.1537	-.2322710	-402.3859	157.8128
HONOLULU IV	BIAS Y	-460.5637	-.7354538E-01	-460.6373	247.6411
HONOLULU IV	BIAS Z	83.65726	0.3424831	83.99974	231.0944

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 57:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HUANCAYO	BIAS X	50.80476	0.1509122E-02	50.80627	70.09446
HUANCAYO	BIAS Y	-43.73397	0.1448312E-01	-43.71948	107.8492
HUANCAYO	BIAS Z	-34.65863	-.8979818E-02	-34.66761	152.6910

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 58:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HURBANOVO	BIAS X	63.22795	-.3232417E-02	63.22471	34.75576
HURBANOVO	BIAS Y	11.30824	-.1051307E-01	11.29773	36.19833
HURBANOVO	BIAS Z	-56.17699	0.2709259E-02	-56.17428	46.95057

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 59:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
HYDERABAD	BIAS X	359.9712	-.7341566E-03	359.9704	111.5355
HYDERABAD	BIAS Y	96.52580	-.4392112E-02	96.52141	134.5737
HYDERABAD	BIAS Z	317.5852	0.2630458E-01	317.6115	179.2385

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 60:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
JAIPUR	BIAS	X	233.5697	0.8555901E-02	233.5782	116.3216
JAIPUR	BIAS	Y	-355.0071	-.8872140E-02	-355.0159	128.0235
JAIPUR	BIAS	Z	-239.2366	0.2887708E-01	-239.2078	163.7661

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 61:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KAKIOKA II	BIAS	X	94.53734	0.5240303E-01	94.58975	112.5814
KAKIOKA II	BIAS	Y	104.2377	-.1957862E-01	104.2181	98.83683
KAKIOKA II	BIAS	Z	-243.4694	-.3042553E-01	-243.4998	91.57084

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 62:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOYA	BIAS	X	149.6108	0.1070381	149.7178	134.2457
KANOYA	BIAS	Y	-33.50936	-.5076133E-01	-33.56012	116.0420
KANOYA	BIAS	Z	-238.5634	-.9797443E-01	-238.6614	134.7183

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 63:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KANOZAN	BIAS	X	61.52056	0.5082379E-01	61.57138	109.9810
KANOZAN	BIAS	Y	122.9127	-.1181083E-01	122.9009	99.62298
KANOZAN	BIAS	Z	-225.4544	-.3537221E-01	-225.4897	94.25073

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 64:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KLYUCHI II	BIAS	X	358.9065	0.1709932E-02	358.9082	136.3816
KLYUCHI II	BIAS	Y	-41.28724	-.4164132E-01	-41.32888	124.0063
KLYUCHI II	BIAS	Z	-3.687319	0.7643828E-02	-3.679675	185.7865

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 65:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KODAIKANAL II	BIAS	X	-580.6290	0.4632092E-03	-580.6286	69.63671
KODAIKANAL II	BIAS	Y	277.9732	0.1293341E-01	277.9861	166.7361
KODAIKANAL II	BIAS	Z	-301.7489	0.2791667E-01	-301.7210	217.8800

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 66:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
KRASNAYA PAKHRA	BIAS	X	250.2295	0.2003295E-01	250.2495	59.64297
KRASNAYA PAKHRA	BIAS	Y	93.08578	0.6574048E-02	93.09235	74.34245
KRASNAYA PAKHRA	BIAS	Z	345.2316	-.8198602E-02	345.2234	81.82385

Summary of ARC-ARC correlations for arc-set # 66:
Correlations > RCUT = 0.30

ARC parameter #1	ARC parameter #2
KRASNAYA PAKHRA BIAS Y	KRASNAYA PAKHRA BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 67:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LANZHOU II	BIAS X	75.87267	0.8360361E-02	75.88103	133.2711
LANZHOU II	BIAS Y	65.91018	0.5543348E-01	65.96561	121.4515
LANZHOU II	BIAS Z	295.8744	0.6860412E-01	295.9430	219.6241

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 68:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LEIRVOGUR	BIAS X	-221.1221	-.1111852E-01	-221.1332	60.49161
LEIRVOGUR	BIAS Y	632.8460	-.4257806E-02	632.8417	66.75041
LEIRVOGUR	BIAS Z	-644.8068	-.5846269E-02	-644.8126	104.4457

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 69:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LERWICK II	BIAS X	-141.6642	-.1004448E-01	-141.6743	47.36618
LERWICK II	BIAS Y	257.6813	0.7727135E-03	257.6821	46.60889
LERWICK II	BIAS Z	-31.57719	0.3442354E-02	-31.57375	68.23088

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 70:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUANDA BELAS I	BIAS X	365.8864	0.1393313E-01	365.9004	115.0596
LUANDA BELAS I	BIAS Y	125.2951	-.2784206E-01	125.2673	141.6843
LUANDA BELAS I	BIAS Z	41.25305	0.7753336E-01	41.33058	194.6719

Summary of ARC-ARC correlations for arc-set # 70:
Correlations > RCUT = 0.30

ARC parameter #1	ARC parameter #2
LUANDA BELAS I BIAS X	LUANDA BELAS I BIAS Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 71:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
LUNPING	BIAS X	252.3633	0.1005485	252.4638	169.5242
LUNPING	BIAS Y	-93.66820	-.1451199	-93.81332	176.9664
LUNPING	BIAS Z	-121.5770	-.8248848E-01	-121.6595	214.3623

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 72:

LABEL		OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

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                 -----               ----------     ------------   ------------    --------------
LVOV                 BIAS  X     242.8324        -.5290567E-03   242.8319         36.66324
LVOV                 BIAS  Y     177.5571        -.1549841E-01   177.5416         46.53449
LVOV                 BIAS  Z     167.4512        -.6161692E-02   167.4450         56.37039
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  73:
         LABEL                   OLD VALUE      DEL SOLUTION   NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------   ------------    --------------
M BOUR               BIAS  X     125.0113        -.2001601E-02   125.0093        107.8262
M BOUR               BIAS  Y    -16.42049        -.1385166E-01  -16.43434        119.9280
M BOUR               BIAS  Z     200.7405        0.4401037E-02   200.7449        138.1703
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  74:
         LABEL                   OLD VALUE      DEL SOLUTION   NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------   ------------    --------------
MACQUARIE ISLND      BIAS  X     195.5445        -.5060126E-01   195.4939        144.8767
MACQUARIE ISLND      BIAS  Y     38.12213        0.3378908E-01   38.15591        178.8245
MACQUARIE ISLND      BIAS  Z    -216.1096        0.7283202E-01  -216.0368        412.1902

  Summary of ARC-ARC correlations for arc-set #  74:
            Correlations > RCUT = 0.30
      ARC parameter #1            ARC parameter #2
      ----------------            ----------------
  MACQUARIE ISLND  BIAS  X   MACQUARIE ISLND  BIAS  Z
  MACQUARIE ISLND  BIAS  Y   MACQUARIE ISLND  BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  75:
         LABEL                   OLD VALUE      DEL SOLUTION   NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------   ------------    --------------
MANHAY II            BIAS  X    0.4526092        -.4265837E-03  0.4521826        36.80378
MANHAY II            BIAS  Y     16.54273        -.8156637E-03   16.54191        32.65881
MANHAY II            BIAS  Z     191.4862        0.9385510E-02   191.4956        48.83469
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  76:
         LABEL                   OLD VALUE      DEL SOLUTION   NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------   ------------    --------------
MAPUTO II            BIAS  X     315.2142        0.1873216E-02   315.2160        72.59348
MAPUTO II            BIAS  Y     36.85261        0.1369429E-01   36.86631        70.90202
MAPUTO II            BIAS  Z    -153.4689        0.1036467E-01  -153.4586        101.6598
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  77:
         LABEL                   OLD VALUE      DEL SOLUTION   NEW SOLUTION    ERROR ESTIMATE
         -----                   ---------      ------------   ------------    --------------
MARTIN VIVIES        BIAS  X    -606.9463        0.4548161E-02  -606.9417        89.25729
MARTIN VIVIES        BIAS  Y    -754.4743        -.2035686E-01  -754.4946        160.8218
MARTIN VIVIES        BIAS  Z    -2015.379        0.4957221E-02  -2015.374        106.5443

  Summary of ARC-ARC correlations for arc-set #  77:
            Correlations > RCUT = 0.30
      ARC parameter #1            ARC parameter #2
      ----------------            ----------------
```

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  MARTIN VIVIES     BIAS  X   MARTIN VIVIES     BIAS  Y
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  78:
         LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
         -----                  ---------      ------------     ------------    --------------
MAWSON            BIAS  X      -58.15056       -.4669702E-01    -58.19726        155.6121
MAWSON            BIAS  Y       159.4736       0.1823418E-01     159.4919        175.3614
MAWSON            BIAS  Z       5.561862       0.1543818E-01     5.577300        247.5308
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  79:
         LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
         -----                  ---------      ------------     ------------    --------------
MEANOOK III       BIAS  X       130.3757       -.2484733E-01     130.3508        83.69717
MEANOOK III       BIAS  Y       35.92414       0.1829388E-01     35.94244        83.69786
MEANOOK III       BIAS  Z       45.12247       -.4344473E-02     45.11812        134.0824

  Summary of ARC-ARC correlations for arc-set #  79:
             Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
  MEANOOK III       BIAS  X   MEANOOK III       BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  80:
         LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
         -----                  ---------      ------------     ------------    --------------
MEMAMBETSU        BIAS  X      -231.3428       0.4236713E-01    -231.3004        148.1793
MEMAMBETSU        BIAS  Y       252.2858       -.5436841E-01     252.2314        126.6263
MEMAMBETSU        BIAS  Z      -102.6039       -.6245946E-02    -102.6101        140.8904
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  81:
         LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
         -----                  ---------      ------------     ------------    --------------
MIRNYY III        BIAS  X      -177.3440       -.2739661E-01    -177.3714        110.5342
MIRNYY III        BIAS  Y       156.1901       -.1653503E-01     156.1736        130.6825
MIRNYY III        BIAS  Z      -436.2239       0.1718182E-01    -436.2067        167.4105

  Summary of ARC-ARC correlations for arc-set #  81:
             Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
  MIRNYY III        BIAS  X   MIRNYY III        BIAS  Y
  MIRNYY III        BIAS  Y   MIRNYY III        BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  82:
         LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION    ERROR ESTIMATE
         -----                  ---------      ------------     ------------    --------------
MIZUSAWA          BIAS  X      -73.80077       0.5225052E-01    -73.74852        123.0022
MIZUSAWA          BIAS  Y       141.5021       -.3763773E-01     141.4645        103.5859
MIZUSAWA          BIAS  Z      -339.0224       -.1713995E-01    -339.0395        96.28578
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  83:
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         LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                  ---------     ------------    ------------     --------------
MOLODEZHNAYA      BIAS  X     -121.5354      -.5862030E-01    -121.5940          183.8597
MOLODEZHNAYA      BIAS  Y     -39.63754      0.8697330E-02    -39.62884          104.8238
MOLODEZHNAYA      BIAS  Z     -520.3386      -.1077094E-01    -520.3494          314.9115

  Summary of ARC-ARC correlations for arc-set #  83:
               Correlations > RCUT = 0.30
      ARC parameter #1           ARC parameter #2
      ----------------           ----------------
  MOLODEZHNAYA      BIAS  X   MOLODEZHNAYA      BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  84:
         LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                  ---------     ------------    ------------     --------------
MOULD BAY         BIAS  X     -79.30351      0.1860160E-01    -79.28491          112.9208
MOULD BAY         BIAS  Y     -59.79561      0.1100896E-01    -59.78460          114.5980
MOULD BAY         BIAS  Z      128.1072      0.4389993E-02     128.1116          150.5788
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  85:
         LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                  ---------     ------------    ------------     --------------
MUNTINLUPA        BIAS  X     -78.88012      0.1502245E-01    -78.86509          109.7235
MUNTINLUPA        BIAS  Y      50.49912      -.1456410         50.35348          236.4995
MUNTINLUPA        BIAS  Z     -292.1547      -.1657328        -292.3204          371.9679
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  86:
         LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                  ---------     ------------    ------------     --------------
NAMPULA           BIAS  X     -98.69028      0.3595449E-01    -98.65425          125.5222
NAMPULA           BIAS  Y      13.89242      0.3639158E-01     13.92881          138.9382
NAMPULA           BIAS  Z      157.1532      0.4569870E-01     157.1989          193.3894

  Summary of ARC-ARC correlations for arc-set #  86:
               Correlations > RCUT = 0.30
      ARC parameter #1           ARC parameter #2
      ----------------           ----------------
  NAMPULA           BIAS  X   NAMPULA           BIAS  Y
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  87:
         LABEL                  OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
         -----                  ---------     ------------    ------------     --------------
NEWPORT           BIAS  X      26.90153      -.2396902E-01     26.87756          86.41281
NEWPORT           BIAS  Y      129.2818      0.6284581E-02     129.2881          64.80520
NEWPORT           BIAS  Z     -25.79074      0.4403058E-02    -25.78634          85.44201

  Summary of ARC-ARC correlations for arc-set #  87:
               Correlations > RCUT = 0.30
      ARC parameter #1           ARC parameter #2
      ----------------           ----------------
  NEWPORT           BIAS  X   NEWPORT           BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  88:
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      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
NIEMEGK          BIAS  X   -2.438999      -.2268934E-02    -2.441268          34.29699
NIEMEGK          BIAS  Y   53.47985       -.6628889E-02    53.47322           33.84243
NIEMEGK          BIAS  Z   -61.19361      0.8476979E-02    -61.18513          46.91951
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  89:
      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
NOVO KAZALINSK   BIAS  X   32.98138       0.1836417E-01    32.99975          122.6117
NOVO KAZALINSK   BIAS  Y   -256.9371      0.2960844E-01    -256.9075         105.0461
NOVO KAZALINSK   BIAS  Z   64.45052       0.3178106E-01    64.48230          202.6436
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  90:
      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
NURMIJARVI       BIAS  X   283.7537       0.3185802E-02    283.7569          42.59816
NURMIJARVI       BIAS  Y   19.55763       0.9186403E-03    19.55855          45.11571
NURMIJARVI       BIAS  Z   191.8191       0.1088338E-02    191.8202          52.42322
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  91:
      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
OTTAWA           BIAS  X   115.3174       0.6812917E-02    115.3242          90.11793
OTTAWA           BIAS  Y   -252.9752      -.8943665E-02    -252.9841         78.73997
OTTAWA           BIAS  Z   151.1881       0.1507127E-02    151.1897          100.5691

  Summary of ARC-ARC correlations for arc-set #  91:
              Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
  OTTAWA           BIAS  X   OTTAWA           BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  92:
      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
PAMATAI II       BIAS  X   -657.7142      0.5964824E-01    -657.6546         89.19826
PAMATAI II       BIAS  Y   -943.6783      -.1088735        -943.7872         97.65165
PAMATAI II       BIAS  Z   -42.24191      -.4474343E-01    -42.28665         111.7200
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  93:
      LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
      -----                ---------      ------------     ------------     --------------
PARATUNKA        BIAS  X   -343.3079      0.5164330E-01    -343.2563         213.1887
PARATUNKA        BIAS  Y   366.4739       -.2469989E-01    366.4492          153.0660
PARATUNKA        BIAS  Z   77.39202       -.2853467E-01    77.36348          307.8681

  Summary of ARC-ARC correlations for arc-set #  93:
              Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
```

```
PARATUNKA         BIAS  X   PARATUNKA         BIAS  Z
x- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  94:
       LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
       -----                  ---------      ------------     ------------     --------------
PATRONY             BIAS  X   94.23905       -.3122980E-01     94.20782        153.2834
PATRONY             BIAS  Y   109.8606       0.2849222E-01     109.8891        128.0350
PATRONY             BIAS  Z   105.5291       0.7608614E-02     105.5367        209.9318
  x- No arc/arc correlations are greater than  0.30for this arcset.
  x- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  95:
       LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
       -----                  ---------      ------------     ------------     --------------
PLESHENITZI         BIAS  X   357.2384       0.8737743E-02     357.2472        39.62547
PLESHENITZI         BIAS  Y   265.2630       -.8803219E-02     265.2542        53.49725
PLESHENITZI         BIAS  Z  -35.31407       -.7944955E-02    -35.32202        60.48842
  x- No arc/arc correlations are greater than  0.30for this arcset.
  x- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  96:
       LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
       -----                  ---------      ------------     ------------     --------------
PODKAM TUNGUSKA     BIAS  X   198.4053       0.4542550E-02     198.4098        164.1328
PODKAM TUNGUSKA     BIAS  Y   115.4343       -.3522248E-01     115.3991        142.4388
PODKAM TUNGUSKA     BIAS  Z  -88.75825       -.1214966E-01    -88.77040        224.6927

  Summary of ARC-ARC correlations for arc-set #  96:
               Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
  PODKAM TUNGUSKA   BIAS  X   PODKAM TUNGUSKA   BIAS  Y
  x- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  97:
       LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
       -----                  ---------      ------------     ------------     --------------
PORT MORESBY        BIAS  X  -67.75190       0.9025444E-01    -67.66165        181.3765
PORT MORESBY        BIAS  Y   87.04436       -.1693860         86.87497        253.8772
PORT MORESBY        BIAS  Z   31.88803       0.1158178         32.00385        230.4086

  Summary of ARC-ARC correlations for arc-set #  97:
               Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
  PORT MORESBY      BIAS  X   PORT MORESBY      BIAS  Z
  x- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER  98:
       LABEL                  OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
       -----                  ---------      ------------     ------------     --------------
PORT-ALFRED I       BIAS  X  -691.8609       0.2935280E-01    -691.8316        162.1633
PORT-ALFRED I       BIAS  Y   1209.197       -.6689399E-02     1209.190        102.7864
PORT-ALFRED I       BIAS  Z   28.99290       -.6190724E-01     28.93099        280.5712

  Summary of ARC-ARC correlations for arc-set #  98:
               Correlations > RCUT = 0.30
      ARC parameter #1              ARC parameter #2
      ----------------              ----------------
```

PORT-ALFRED I BIAS X PORT-ALFRED I BIAS Y
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 99:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
PORT-AUX-FRANCA	BIAS	X	260.0416	0.3257718E-02	260.0449	108.4791
PORT-AUX-FRANCA	BIAS	Y	221.2032	0.1970023E-01	221.2229	160.5300
PORT-AUX-FRANCA	BIAS	Z	650.9833	-.2177140E-01	650.9615	190.7722

Summary of ARC-ARC correlations for arc-set # 99:
Correlations > RCUT = 0.30

ARC parameter #1	ARC parameter #2
PORT-AUX-FRANCA BIAS X	PORT-AUX-FRANCA BIAS Y

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 100:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
RESOLUTE BAY	BIAS	X	11.15942	0.1912958E-02	11.16133	92.24101
RESOLUTE BAY	BIAS	Y	-82.41532	0.1115787E-01	-82.40416	90.79082
RESOLUTE BAY	BIAS	Z	211.8132	0.6789804E-02	211.8200	123.2879

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 101:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SABHAWALA II	BIAS	X	66.17844	0.6662253E-02	66.18510	109.8443
SABHAWALA II	BIAS	Y	15.84831	-.2615054E-01	15.82216	128.4632
SABHAWALA II	BIAS	Z	-140.9275	0.2489365E-01	-140.9026	165.9211

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 102:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN JUAN II	BIAS	X	11.22884	-.1358105E-01	11.21525	89.29209
SAN JUAN II	BIAS	Y	94.25441	0.7473502E-02	94.26189	97.41353
SAN JUAN II	BIAS	Z	152.0829	0.1796272E-01	152.1008	78.16515

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 103:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SAN PABLO	BIAS	X	84.37462	-.6718332E-02	84.36790	46.53666
SAN PABLO	BIAS	Y	40.76488	-.2348373E-02	40.76253	37.82491
SAN PABLO	BIAS	Z	-84.60415	-.1569769E-02	-84.60572	53.06399

*- No arc/arc correlations are greatsr than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 104:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SANAE II	BIAS	X	-73.46760	-.1978909E-01	-73.48739	89.37862
SANAE II	BIAS	Y	-185.9359	-.1576959E-01	-185.9517	133.4805
SANAE II	BIAS	Z	-73.41580	0.1125720E-01	-73.40454	104.3666

```
Summary of ARC-ARC correlations for arc-set # 104:
              Correlations > RCUT = 0.30
    ARC parameter #1              ARC parameter #2
    ----------------              ----------------
  SANAE II          BIAS  Y   SANAE II          BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 105:
         LABEL
         -----             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
                           ---------     ------------    ------------    --------------
SHESHAN           BIAS  X  -13.01944     0.1092060       -12.91024         162.6602
SHESHAN           BIAS  Y  -122.7788     -.1270825       -122.9058         151.2598
SHESHAN           BIAS  Z  243.3240      0.1411020E-01    243.3381         145.2582
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 106:
         LABEL
         -----             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
                           ---------     ------------    ------------    --------------
SHILLONG          BIAS  X  65.88705      -.1236686E-04   65.88704          136.4054
SHILLONG          BIAS  Y  12.27401      0.4112160E-02   12.27812          134.8030
SHILLONG          BIAS  Z  -293.4866     -.3814626E-01   -293.5248         198.6746
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 107:
         LABEL
         -----             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
                           ---------     ------------    ------------    --------------
SITKA III         BIAS  X  36.04166      -.3022099E-01   36.01144          92.86112
SITKA III         BIAS  Y  0.3387576E-03 0.6729223E-02   0.7067981E-02     81.24372
SITKA III         BIAS  Z  -49.22505     -.1846609E-01   -49.24352         163.7365
 Summary of ARC-ARC correlations for arc-set # 107:
              Correlations > RCUT = 0.30
    ARC parameter #1              ARC parameter #2
    ----------------              ----------------
  SITKA III         BIAS  X   SITKA III         BIAS  Z
  SITKA III         BIAS  Y   SITKA III         BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 108:
         LABEL
         -----             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
                           ---------     ------------    ------------    --------------
SODANKYLA         BIAS  X  -203.3699     -.1700771E-02   -203.3716         68.38841
SODANKYLA         BIAS  Y  19.92873      0.1306723E-01   19.94180          63.35735
SODANKYLA         BIAS  Z  -563.3469     0.2395616E-02   -563.3445         62.94560
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 109:
         LABEL
         -----             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
                           ---------     ------------    ------------    --------------
ST JOHN S         BIAS  X  -43.96419     -.8312424E-03   -43.96502         105.0933
ST JOHN S         BIAS  Y  -18.55891     -.2073906E-02   -18.56098         74.15089
ST JOHN S         BIAS  Z  -115.6498     0.1848944E-01   -115.6313         139.9399
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 110:
         LABEL             OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
```

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEKOLINIY	BIAS	X	-95.34136	0.3142919E-01	-95.30993	214.5191
STEKOLINIY	BIAS	Y	-724.2056	-.1976585E-01	-724.2253	190.3378
STEKOLINIY	BIAS	Z	-50.07130	-.1881166E-01	-50.09012	360.4501

Summary of ARC-ARC correlations for arc-set # 110:
Correlations > RCUT = 0.30

ARC parameter #1			ARC parameter #2		
STEKOLINIY	BIAS	X	STEKOLINIY	BIAS	Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 111:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
STEPANOVKA III	BIAS	X	-.8427709	-.3523604E-02	-.8462945	44.71717
STEPANOVKA III	BIAS	Y	-645.7637	-.1882930E-01	-645.7826	66.59564
STEPANOVKA III	BIAS	Z	61.41940	-.2320624E-01	61.39620	80.57745

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 112:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SURLARI II	BIAS	X	81.15024	-.1159012E-01	81.13865	44.76601
SURLARI II	BIAS	Y	-12.12415	-.1672687E-01	-12.14087	47.80678
SURLARI II	BIAS	Z	-106.7411	-.1005169E-01	-106.7512	65.95609

Summary of ARC-ARC correlations for arc-set # 112:
Correlations > RCUT = 0.30

ARC parameter #1			ARC parameter #2		
SURLARI II	BIAS	X	SURLARI II	BIAS	Y

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 113:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
SYOWA BASE II	BIAS	X	-153.1753	-.5790715E-01	-153.2332	183.0004
SYOWA BASE II	BIAS	Y	-52.02858	0.1072336E-02	-52.02751	102.7660
SYOWA BASE II	BIAS	Z	-260.3510	-.5048176E-02	-260.3561	298.5611

Summary of ARC-ARC correlations for arc-set # 113:
Correlations > RCUT = 0.30

ARC parameter #1			ARC parameter #2		
SYOWA BASE II	BIAS	X	SYOWA BASE II	BIAS	Z

*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 114:

LABEL			OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE
THULE III	BIAS	X	-9.814102	-.3824228E-03	-9.814485	86.38699
THULE III	BIAS	Y	-38.32026	-.5224625E-02	-38.32548	84.41171
THULE III	BIAS	Z	113.5128	0.7045996E-02	113.5198	115.6107

*- No arc/arc correlations are greater than 0.30for this arcset.
*- No arc-common correlations are greater than 0.30for this arcset.

ARC SET NUMBER 115:

LABEL	OLD VALUE	DEL SOLUTION	NEW SOLUTION	ERROR ESTIMATE

```
    -----                    ---------     ------------    ------------     --------------
TIHANY II         BIAS  X    22.55570      -.3725589E-02    22.55198         35.56297
TIHANY II         BIAS  Y    17.25451      -.9397644E-02    17.24511         35.70385
TIHANY II         BIAS  Z   -52.75373      0.2952707E-02   -52.75078         47.92606
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 116:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
TIKSI VI          BIAS  X   -42.34334     0.3109957E-01   -42.31224         163.6426
TIKSI VI          BIAS  Y  -231.0492      -.5642278E-02  -231.0548          226.4732
TIKSI VI          BIAS  Z   215.9309      -.5742694E-02   215.9251          377.3516
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 117:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
TRIVANDRUM        BIAS  X   247.3372      0.9362066E-03   247.3381          59.61983
TRIVANDRUM        BIAS  Y   195.7662      0.1703928E-01   195.7833          175.0259
TRIVANDRUM        BIAS  Z   -20.57130     0.2629004E-01   -20.54501         223.7737
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 118:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
TROMSO            BIAS  X   103.0793      -.2972522E-02   103.0763          70.35833
TROMSO            BIAS  Y  -289.9110      0.1180630E-01  -289.8992          66.73662
TROMSO            BIAS  Z    80.27476     -.5170967E-02    80.26959         70.80784

  Summary of ARC-ARC correlations for arc-set # 118:
             Correlations > RCUT = 0.30
     ARC parameter #1              ARC parameter #2
     ----------------              ----------------
  TROMSO            BIAS  X   TROMSO             BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 119:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
TSUMEB            BIAS  X   27.98690      0.2131362E-01    28.00821         88.90761
TSUMEB            BIAS  Y   55.80265      -.2382770E-01    55.77882         99.94019
TSUMEB            BIAS  Z   35.90477      0.1227977E-01    35.91705         114.3997
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 120:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
TUCSON            BIAS  X  -24.08692      -.6250619E-02   -24.09317         30.00725
TUCSON            BIAS  Y  -69.24013      -.1405609E-01   -69.25419         31.23578
TUCSON            BIAS  Z  111.8619       -.6673987E-02   111.8552          34.77386
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 121:
    LABEL                   OLD VALUE     DEL SOLUTION    NEW SOLUTION     ERROR ESTIMATE
    -----                   ---------     ------------    ------------     --------------
```

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TULSA II          BIAS  X     3.358261      0.8569403E-03     3.359118       51.17086
TULSA II          BIAS  Y   -74.36220      -.4581549E-02    -74.36678       48.44984
TULSA II          BIAS  Z    77.51527       0.2272944E-01    77.53800       62.84820
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 122:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VALENTIA          BIAS  X    82.28409       0.1455444E-03    82.28423       49.85783
VALENTIA          BIAS  Y   -6.611640       0.1743547E-02   -6.609896       49.38967
VALENTIA          BIAS  Z    3.592699       0.4085936E-02    3.596785       53.93898
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 123:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VANNOVSKAYA II    BIAS  X    274.3406       0.1751593E-01    274.3582       138.3650
VANNOVSKAYA II    BIAS  Y    15.75024       0.3006205E-01    15.78030       100.2176
VANNOVSKAYA II    BIAS  Z    85.04724      -.2134664E-01     85.02589       232.4632
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 124:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VASSOURAS         BIAS  X    33.69203       0.3748090E-01    33.72951       109.2534
VASSOURAS         BIAS  Y   -75.69550       0.5269120E-01   -75.64281       133.6470
VASSOURAS         BIAS  Z   -76.28327      -.1349858E-01    -76.29677       131.9724
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 125:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VICTORIA          BIAS  X    71.31790      -.3067732E-01     71.28722       96.64287
VICTORIA          BIAS  Y    13.59711       0.1532235E-02    13.59864       73.82834
VICTORIA          BIAS  Z   -270.3965       0.3698874E-02   -270.3928       84.26694
  Summary of ARC-ARC correlations for arc-set # 125:
           Correlations > RCUT = 0.30
     ARC parameter #1              ARC parameter #2
     ----------------              ----------------
  VICTORIA          BIAS  X   VICTORIA          BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 126:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VOSTOK            BIAS  X   -2.557664      -.2007975E-01    -2.577743       83.03855
VOSTOK            BIAS  Y    156.9866      -.2346098E-01     156.9632       110.4940
VOSTOK            BIAS  Z    92.56982       0.2030883E-01    92.59013       203.7721
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.
ARC SET NUMBER 127:
        LABEL
        -----                OLD VALUE     DEL SOLUTION     NEW SOLUTION   ERROR ESTIMATE
                             ---------     ------------     ------------   --------------
VOYEYKOVO         BIAS  X    84.68728       0.9371440E-02    84.69666       50.06330
```

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VOYEYKOVO          BIAS  Y    136.4026        0.5037417E-02    136.4077          55.64003
VOYEYKOVO          BIAS  Z   -131.2309        0.1396216E-02   -131.2295          59.59899
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 128:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
WIEN KOBENZL       BIAS  X    68.31824        -.2435688E-02    68.31580          33.56653
WIEN KOBENZL       BIAS  Y    22.36532        -.8811193E-02    22.35651          34.26094
WIEN KOBENZL       BIAS  Z    17.81066        0.4804156E-02    17.81547          44.81092
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 129:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
WINGST             BIAS  X    60.16821        -.3511786E-02    60.16470          36.70187
WINGST             BIAS  Y    107.1220        -.3809633E-02    107.1182          34.13895
WINGST             BIAS  Z   -62.05606        0.9923102E-02   -62.04614          50.62058
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 130:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
WITTEVEEN          BIAS  X    27.97576        -.2688878E-02    27.97307          37.10311
WITTEVEEN          BIAS  Y    57.40652        -.2044934E-02    57.40448          32.99248
WITTEVEEN          BIAS  Z   -68.08523        0.1035890E-01   -68.07487          50.64040
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 131:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
WUHAN              BIAS  X    302.5495        0.7016503E-01    302.6196          163.1778
WUHAN              BIAS  Y   -143.1209        -.8363967E-01   -143.2045          161.6606
WUHAN              BIAS  Z    121.2994        0.9536046E-01    121.3947          173.0028
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 132:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
YAKUTSK II         BIAS  X    284.5404        -.6842648E-02    284.5336          203.8437
YAKUTSK II         BIAS  Y   -1298.059        -.1958882E-01   -1298.078          211.0377
YAKUTSK II         BIAS  Z    263.2878        -.1155619E-01    263.2762          307.3759

  Summary of ARC-ARC correlations for arc-set # 132:
              Correlations > RCUT = 0.30
      ARC parameter #1            ARC parameter #2
      ----------------            ----------------
  YAKUTSK II        BIAS  X   YAKUTSK II        BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 133:
         LABEL                OLD VALUE      DEL SOLUTION     NEW SOLUTION     ERROR ESTIMATE
         -----                ---------      ------------     ------------     --------------
YANGI-BAZAR II     BIAS  X   -135.6275        0.1199460E-01   -135.6155          119.2453
YANGI-BAZAR II     BIAS  Y   -35.43451        0.3965910E-02   -35.43055          125.8544
```

```
YANGI-BAZAR II   BIAS  Z    -167.3339       0.4702968E-01   -167.2869        193.4215
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 134:
         LABEL                OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
         -----                ---------     ------------    ------------    --------------
YELLOW-KNIFE     BIAS  X     386.7190       -.1293200E-01    386.7060         78.78675
YELLOW-KNIFE     BIAS  Y    -205.4513       0.2378891E-01   -205.4275         96.91099
YELLOW-KNIFE     BIAS  Z     330.6541       -.2072209E-01    330.6333        172.8751
  *- No arc/arc correlations are greater than  0.30for this arcset.
  *- No arc-common correlations are greater than  0.30for this arcset.

ARC SET NUMBER 135:
         LABEL                OLD VALUE     DEL SOLUTION    NEW SOLUTION    ERROR ESTIMATE
         -----                ---------     ------------    ------------    --------------
ZAYMISHCHE III   BIAS  X    -65.33601       0.2109489E-01   -65.31492         93.80702
ZAYMISHCHE III   BIAS  Y    -85.72630       0.2552626E-01   -85.70077         89.86713
ZAYMISHCHE III   BIAS  Z     360.0143       0.1543931E-01    360.0297        123.4631

  Summary of ARC-ARC correlations for arc-set # 135:
              Correlations > RCUT = 0.30
      ARC parameter #1            ARC parameter #2
      ----------------            ----------------
  ZAYMISHCHE III   BIAS  Y   ZAYMISHCHE III   BIAS  Z
  *- No arc-common correlations are greater than  0.30for this arcset.

--LAST ARC-SET PROCESSED.  TOTAL NUMBER OF ARC-SETS EQUALS:   135
```

FIGURE CAPTIONS

Figures 1-10: Distribution of observatories for specified years.

Figures 11-16: Distribution of Project Magnet data.

Figures 17-24: Distributions of marine magnetic data.

Figures 25-32: Distributions of land surveys.

Figure 33: The variation of spherical harmonic coefficients with time from the various GSFC(5/89) models and from the IGRF85 model. Also shown are the $\pm 1\sigma$ lines for GSFC(5/89-4).
a) g_1^0; b) g_1^1 and h_1^1; c) g_2^0; d) g_2^1 and h_2^1; e) g_2^2 and h_2^2;
f) g_3^0; g) g_3^1 and h_3^1; h) g_3^2 and h_3^2; i) g_3^3 and h_3^3.

Figure 34: The variation of spherical harmonic coefficients relative to that of the GSFC(5/89-4) model with time from the various GSFC(5/89) models and from the IGRF85 model. Also shown are the $\pm 1\sigma$ lines for GSFC(5/89-4).
a) g_1^0; b) g_1^1 and h_1^1; c) g_2^0; d) g_2^1 and h_2^1; e) g_2^2 and h_2^2;
f) g_3^0; g) g_3^1 and h_3^1; h) g_3^2 and h_3^2; i) g_3^3 and h_3^3.

Figure 35: Contours of magnetic field components computed from the GSFC(5/89-4) model at the Earth's surface at 1989.0.
a) D in degrees; b) I in degrees; c) H, nT; d) X, nT
e) Y, nT; f) Z, nT; g) B, nT.

Figure 36: Contours of estimated 1 σ error in magnetic field components computed from the GSFC(5/89-4) model at the Earth's surface at 1989.0.
a) D in degrees; b) I in degrees; c) H, nT; d) X, nT
e) Y, nT; f) Z, nT; g) B, nT.

Figure 37: Contours of the secular variation of magnetic field components computed from the GSFC(5/89-4) model at the Earth's surface at 1989.0.
a) $\dot{D}$ in degrees; b) $\dot{I}$ in degrees; c) $\dot{H}$, nT; d) $\dot{X}$, nT
e) $\dot{Y}$, nT; f) $\dot{Z}$, nT; g) $\dot{B}$, nT.

Figure 38: Contours of estimated 1 σ error in the secular variation of magnetic field components computed from the GSFC(5/89-4) model at the Earth's surface at 1989.0.
a) $\dot{D}$ in degrees; b) $\dot{I}$ in degrees; c) $\dot{H}$, nT; d) $\dot{X}$, nT
e) $\dot{Y}$, nT; f) $\dot{Z}$, nT; g) $\dot{B}$, nT.

Figure 39: Plots of $R_n = (n+1) \sum_{m=0}^{\infty} [(g_n^m)^2 + (h_n^m)^2]$ as a function of degree (n) for GSFC(5/89-4) and GSFC(5/89-5).
R_n is the mean square value over the Earth's surface of the magnetic field intensity produced by harmonics of the nth degree.

Figure 40: Plots of R_n for GSFC(5/89/-4) and MGST(10/81).

Figure 41: Statistics of observatory and survey data versus the GSFC(4/89-x) models and the GSFC(5/89-4) model as a function of year. Units are nT.
a) - f): Observatory data.
a) Mean X deviation; b) Mean Y deviation; c) Mean z deviation.
d) σ_x; e) σ_y; f) σ_z.
g) - n) Survey data.
g) Mean B deviation; h) Mean X deviation; i) Mean Y deviation;
j) Mean Z deviation; k) σ_B; l) σ_x; m) σ_y; n) σ_z.

Figure 42: Residuals in Z from 1985 Project Magnet survey near southern South America and Antarctica. Residuals are given as numbers, in nT, at the location where the data point was acquired.

Figure 43: The variation of spherical harmonic coefficients with time from the various GSFC(4/89) models and from the IGRF85 model. Also shown are the $\pm$ 1σ lines for GSFC(4/89-4).
a) g_1^0; b) g_1^1 and h_1^1; c) g_2^0; d) g_2^1 and h_2^1; e) g_2^2 and h_2^2;
f) g_3^0; g) g_3^1 and h_3^1; h) g_3^2 and h_3^2; i) g_3^3 and h_3^3.

Figure 44: The variation of spherical harmonic coefficients with time from the various GSFC(4/89) models and from the GSFC (5/89-4) model. a) g_1^0; b) g_1^1 and h_1^1; c) g_2^0; d) g_2^1 and h_2^1; e) g_2^2 and h_2^2;
f) g_3^0; g) g_3^1 and h_3^1; h) g_3^2 and h_3^2; i) g_3^3 and h_3^3.

Figure 45: Plot of R_n versus n for the GSFC(4/89-x) models and for GSFC(5/89-4).

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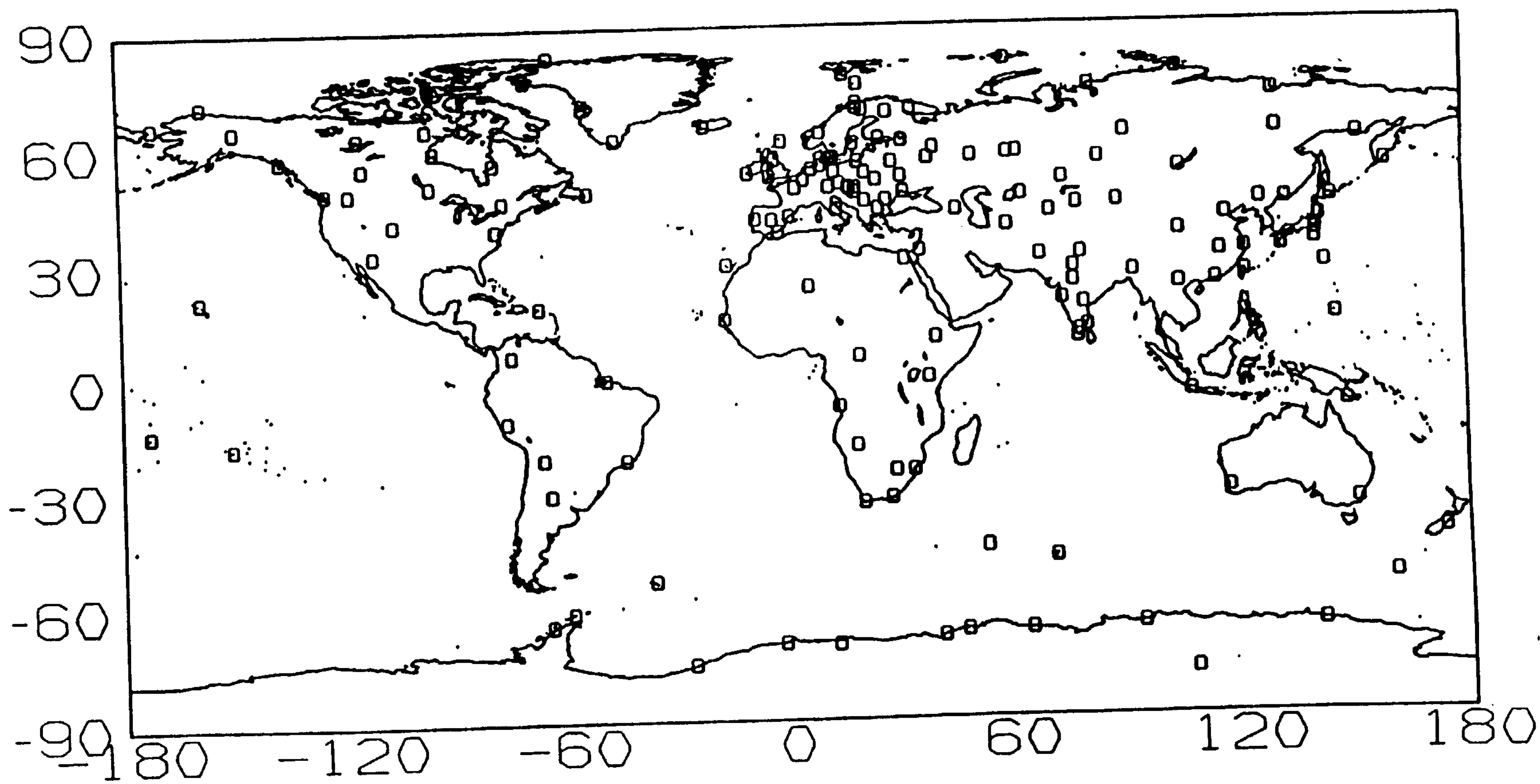

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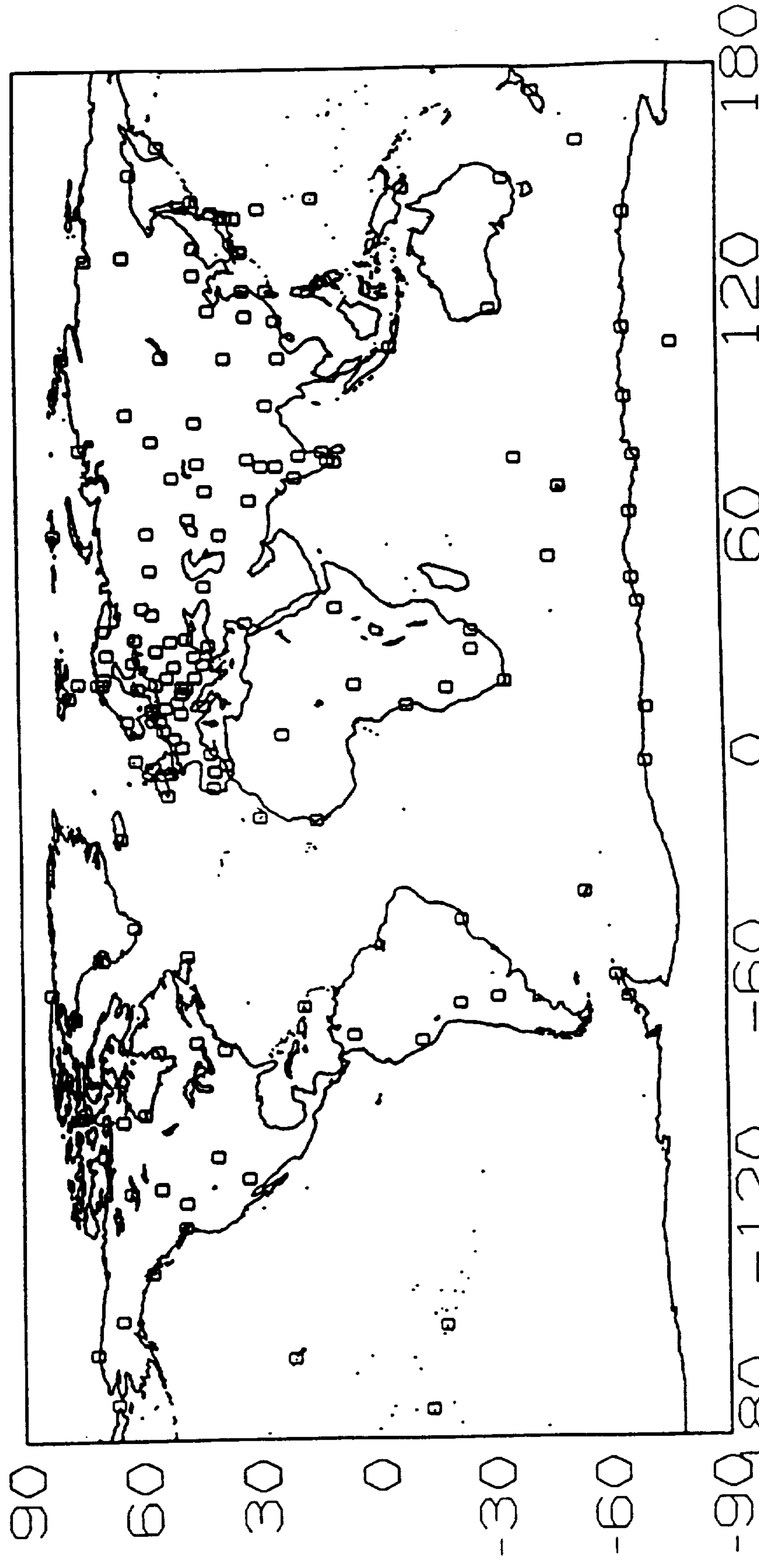

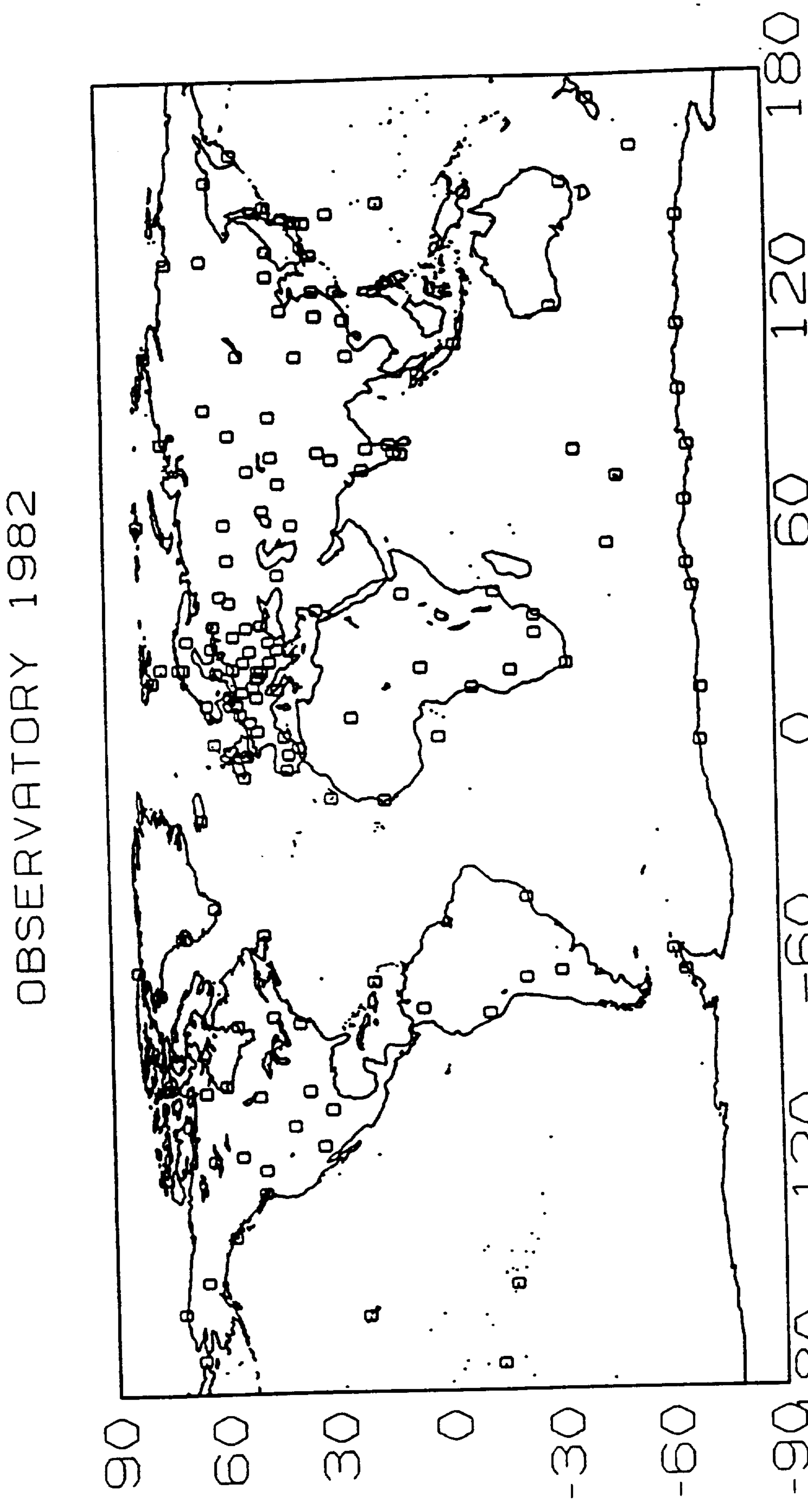
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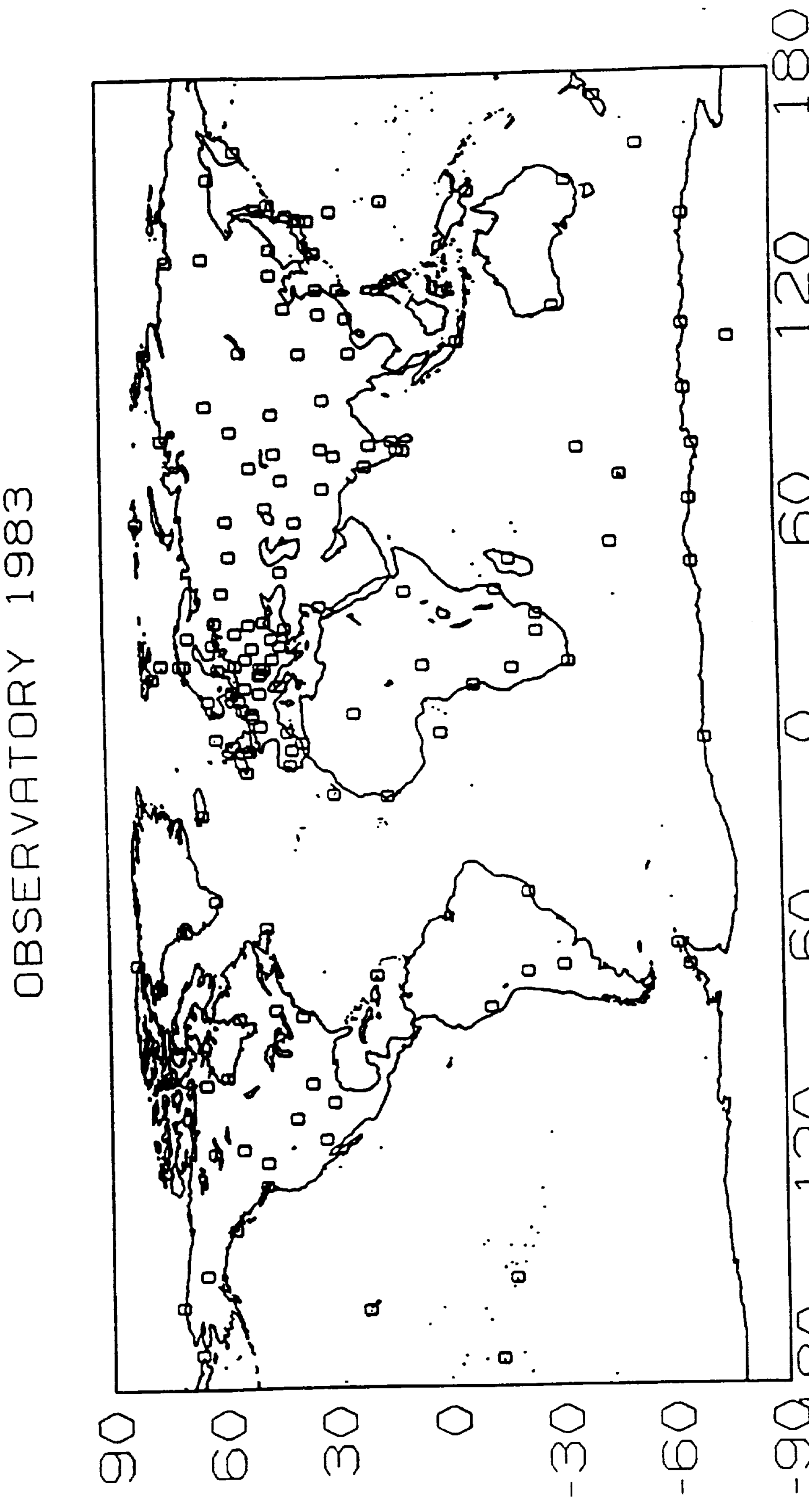
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-180
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0
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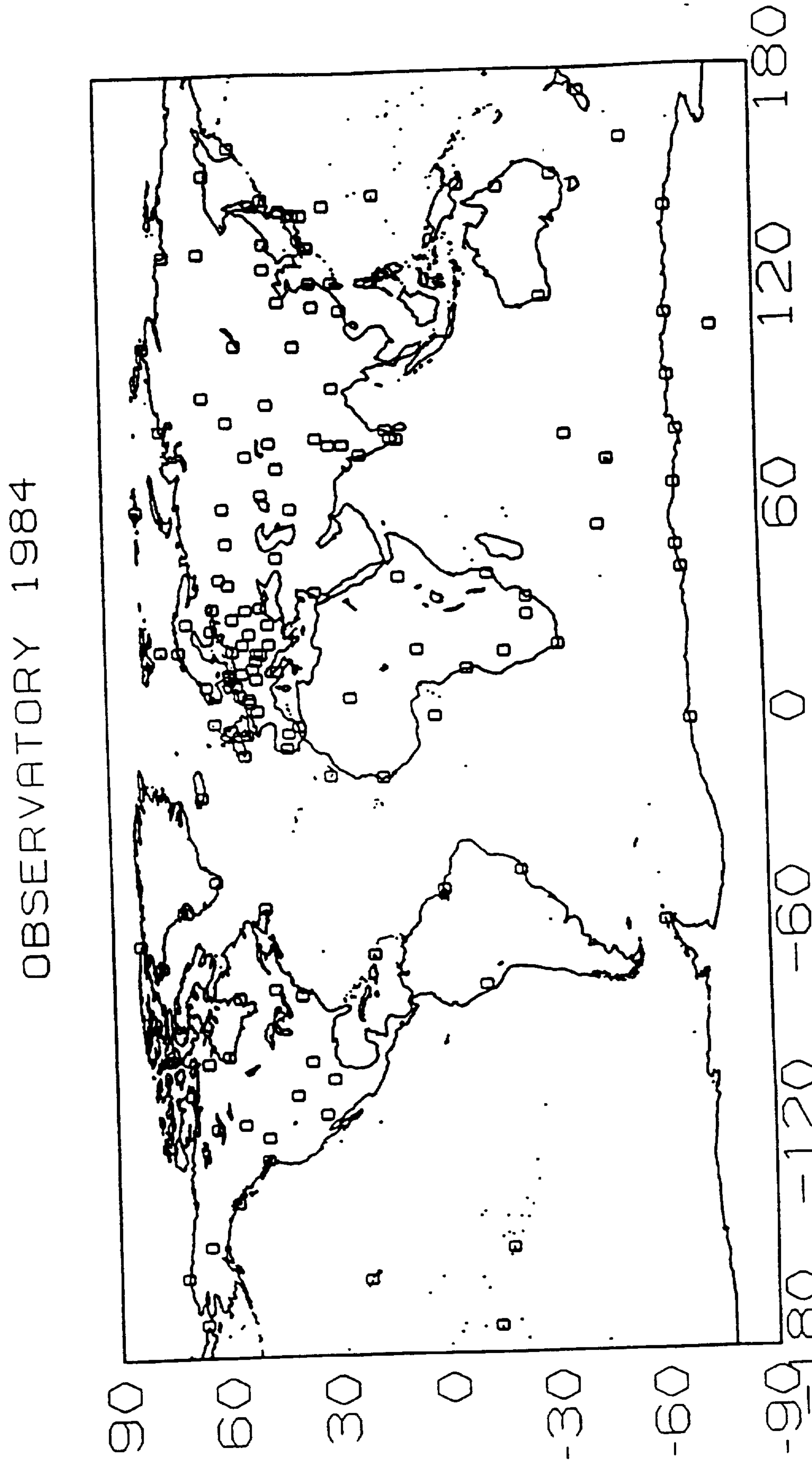
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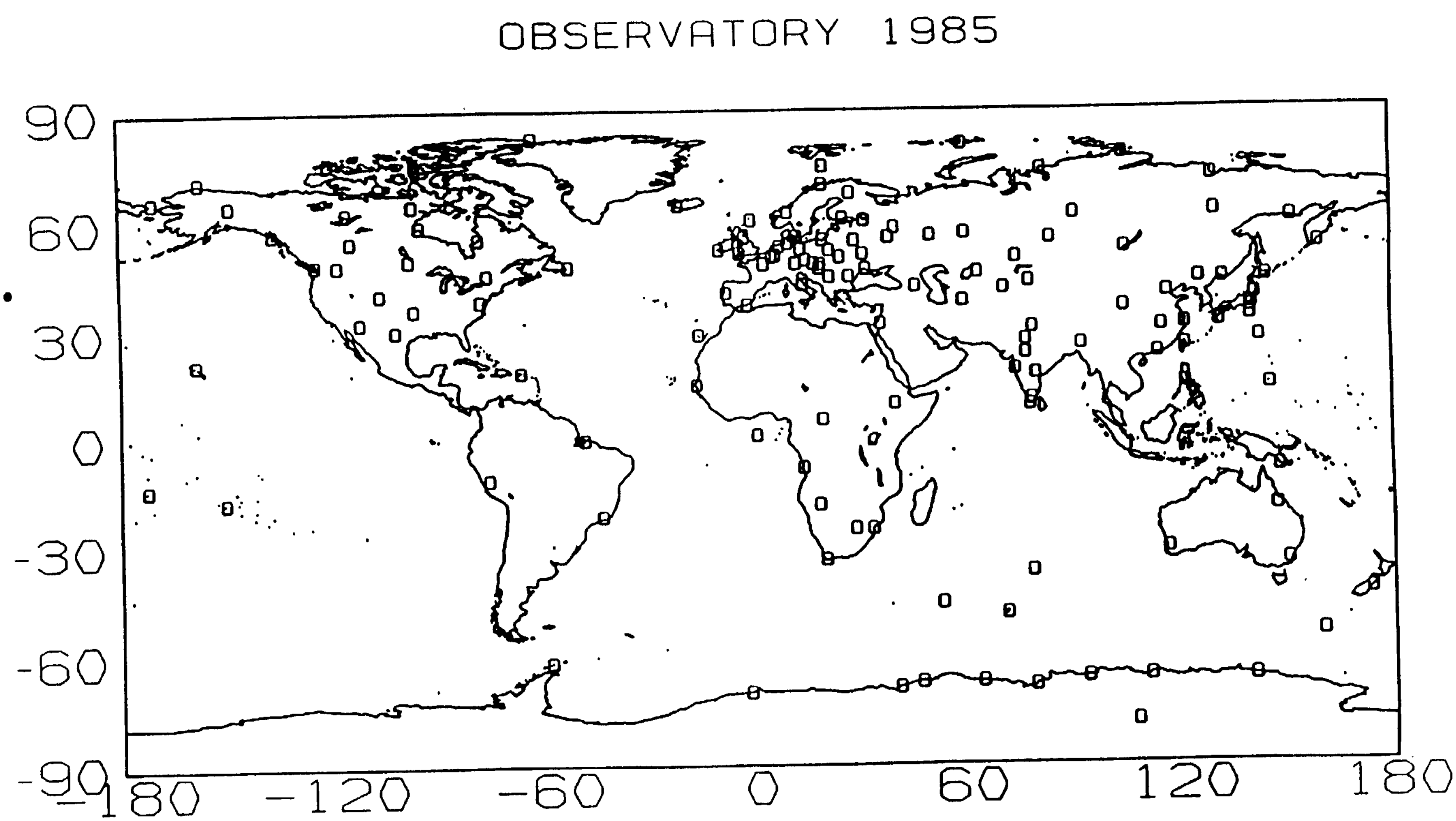
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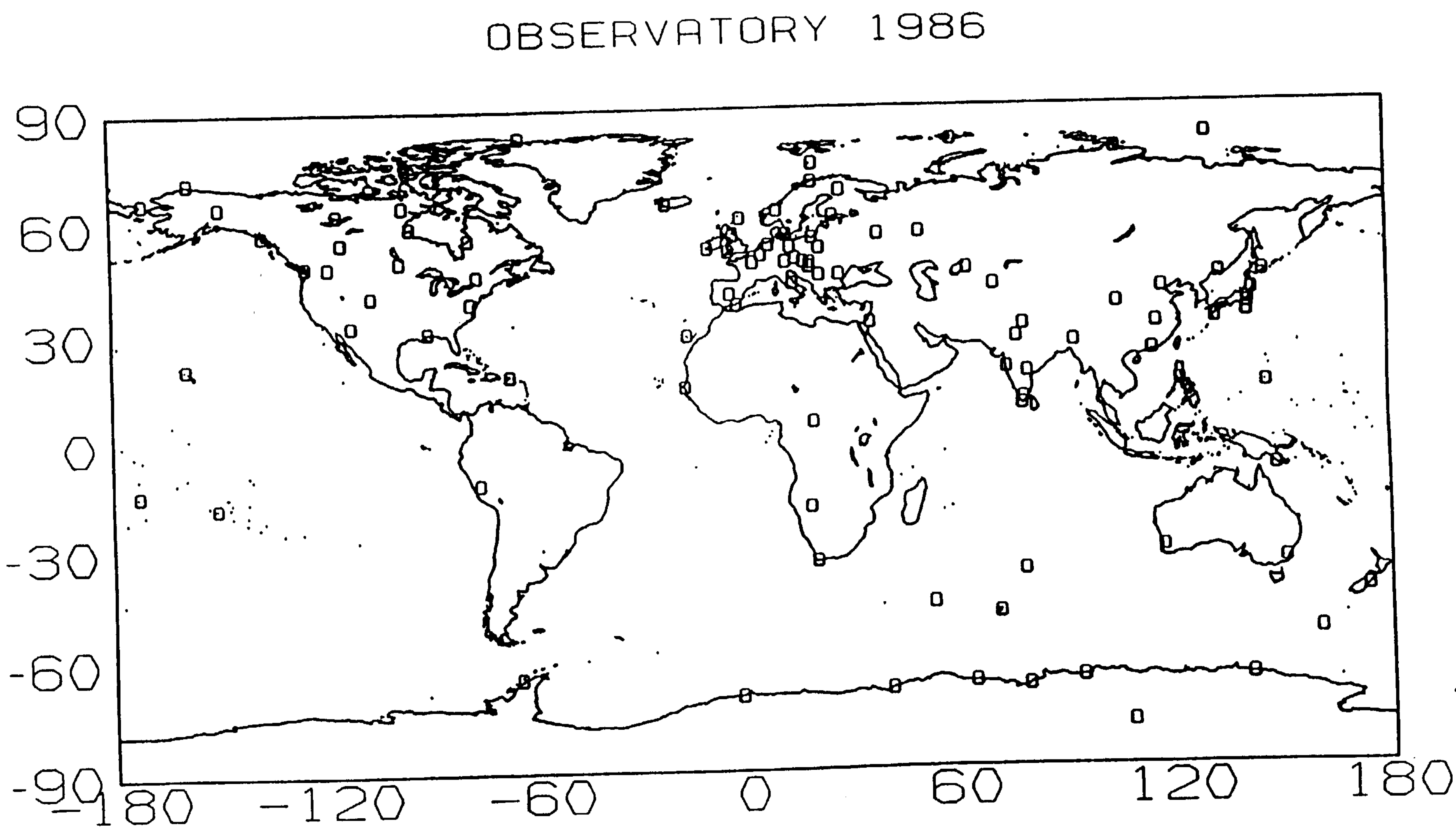
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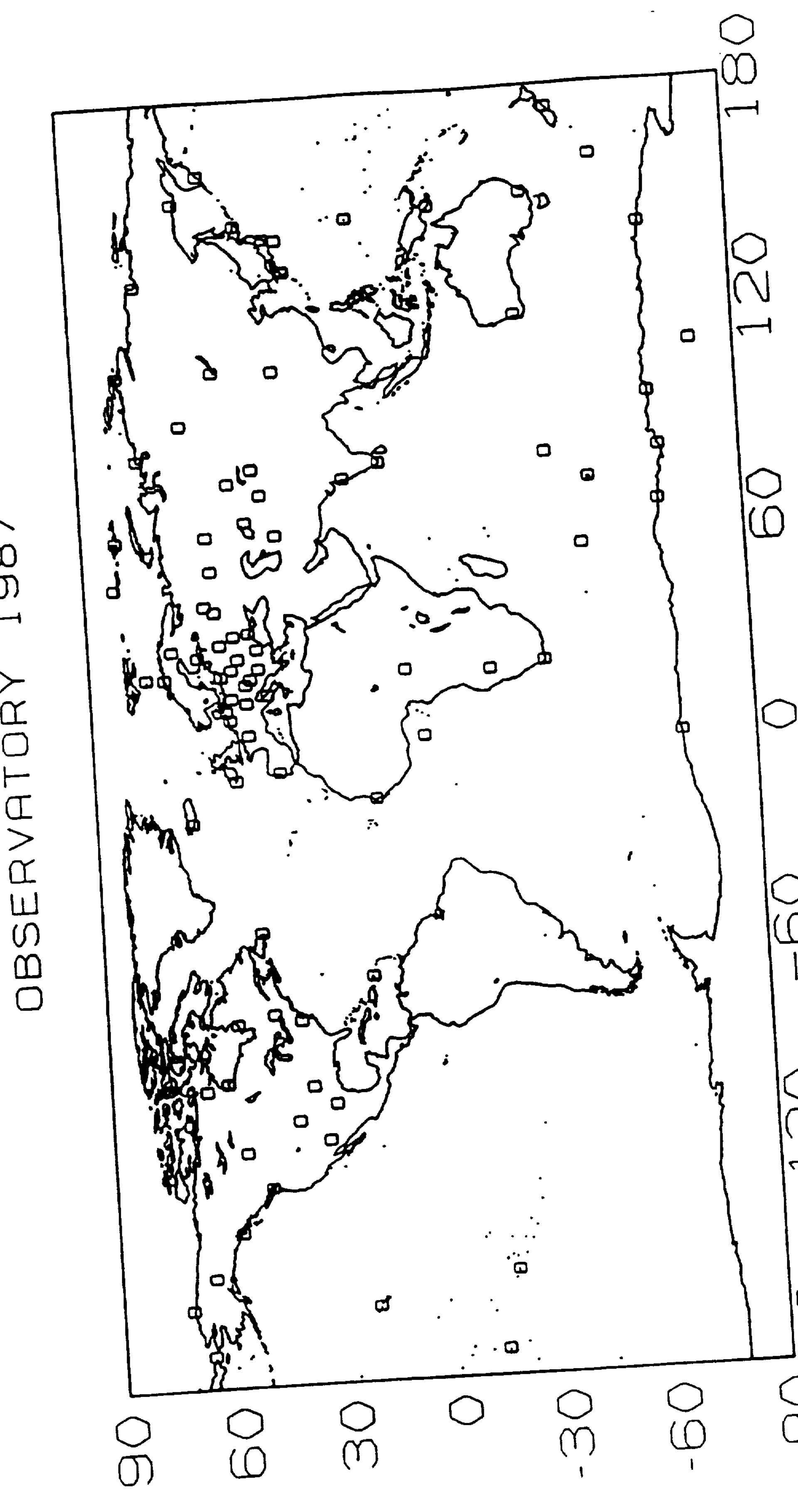
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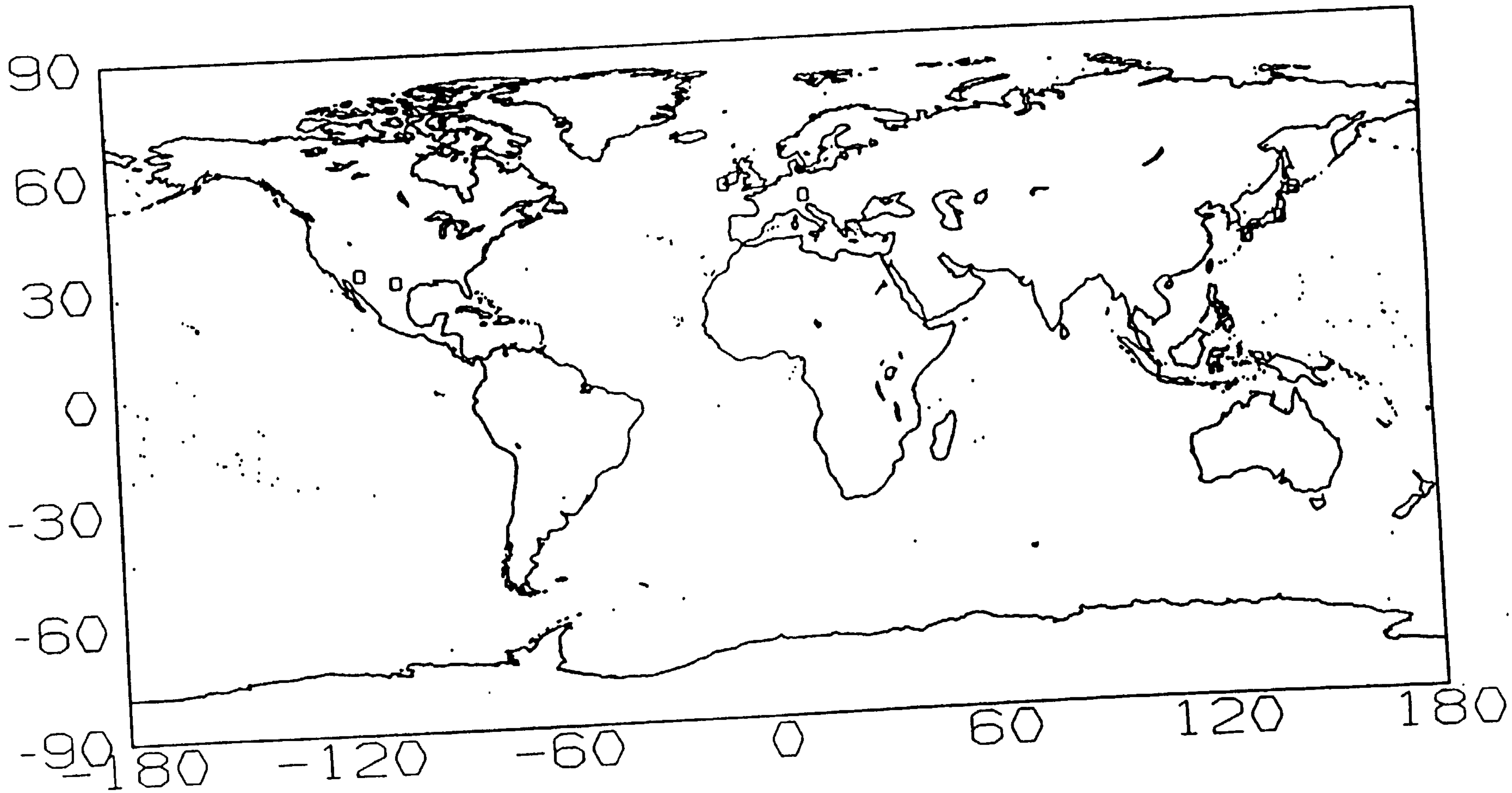

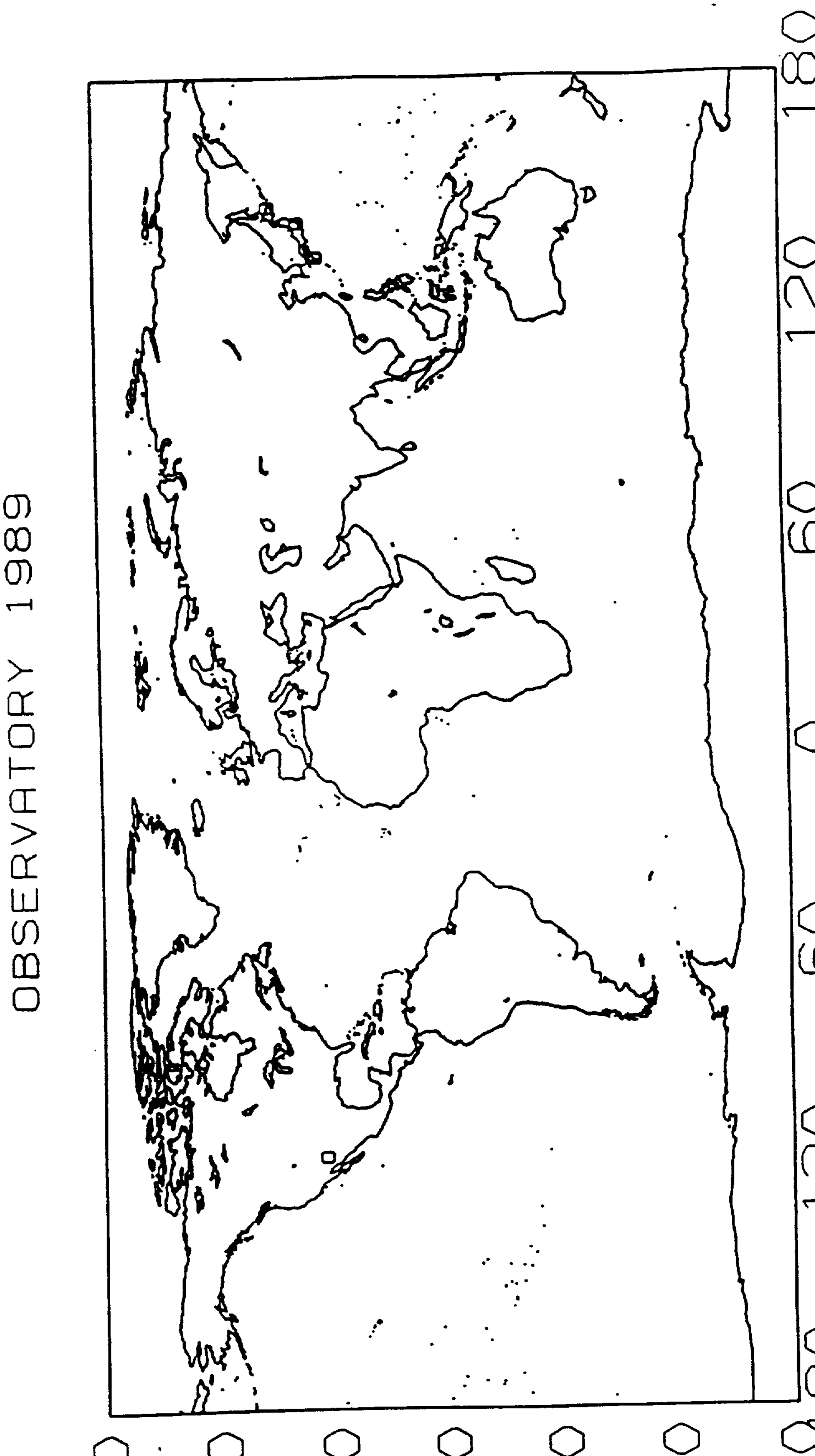
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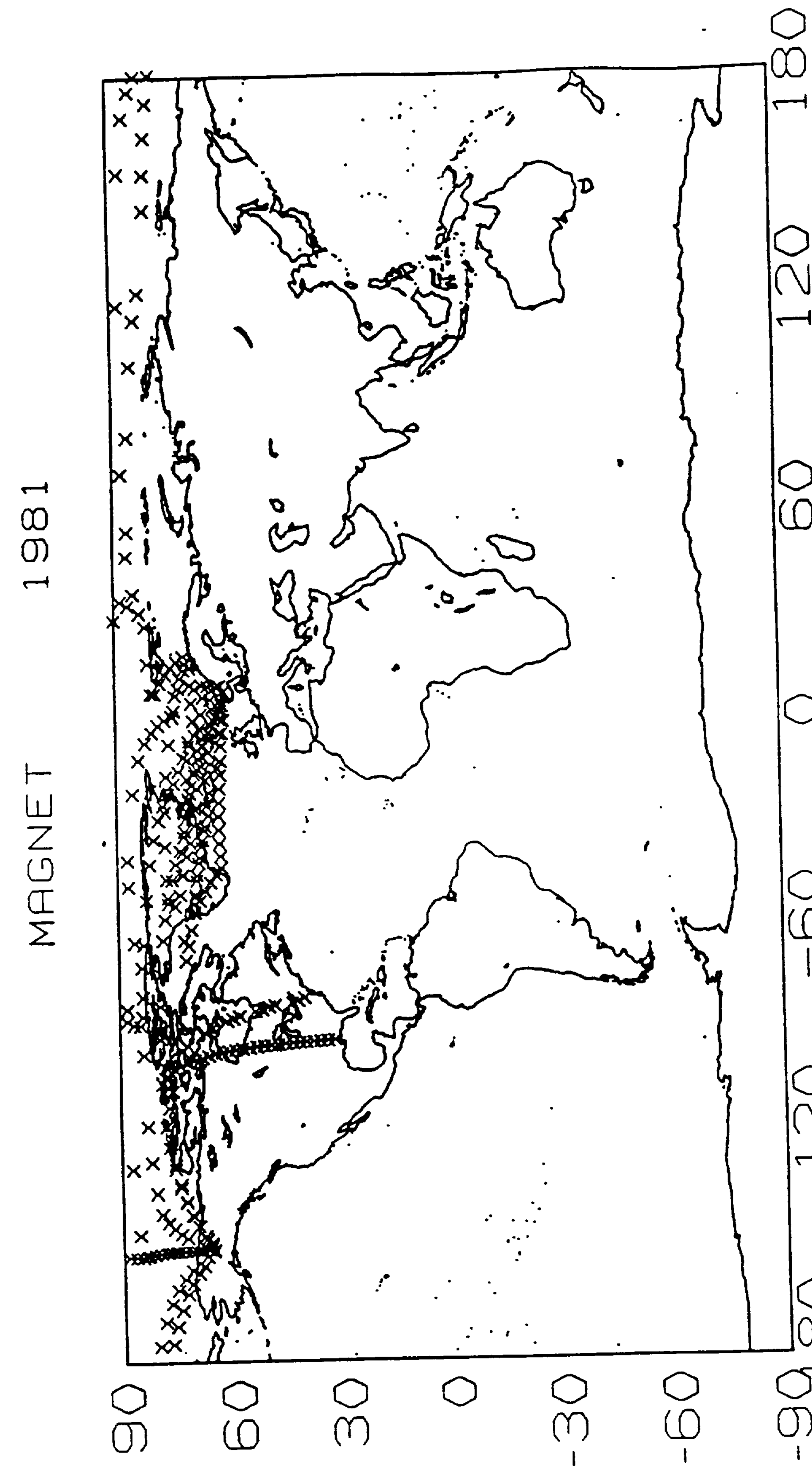
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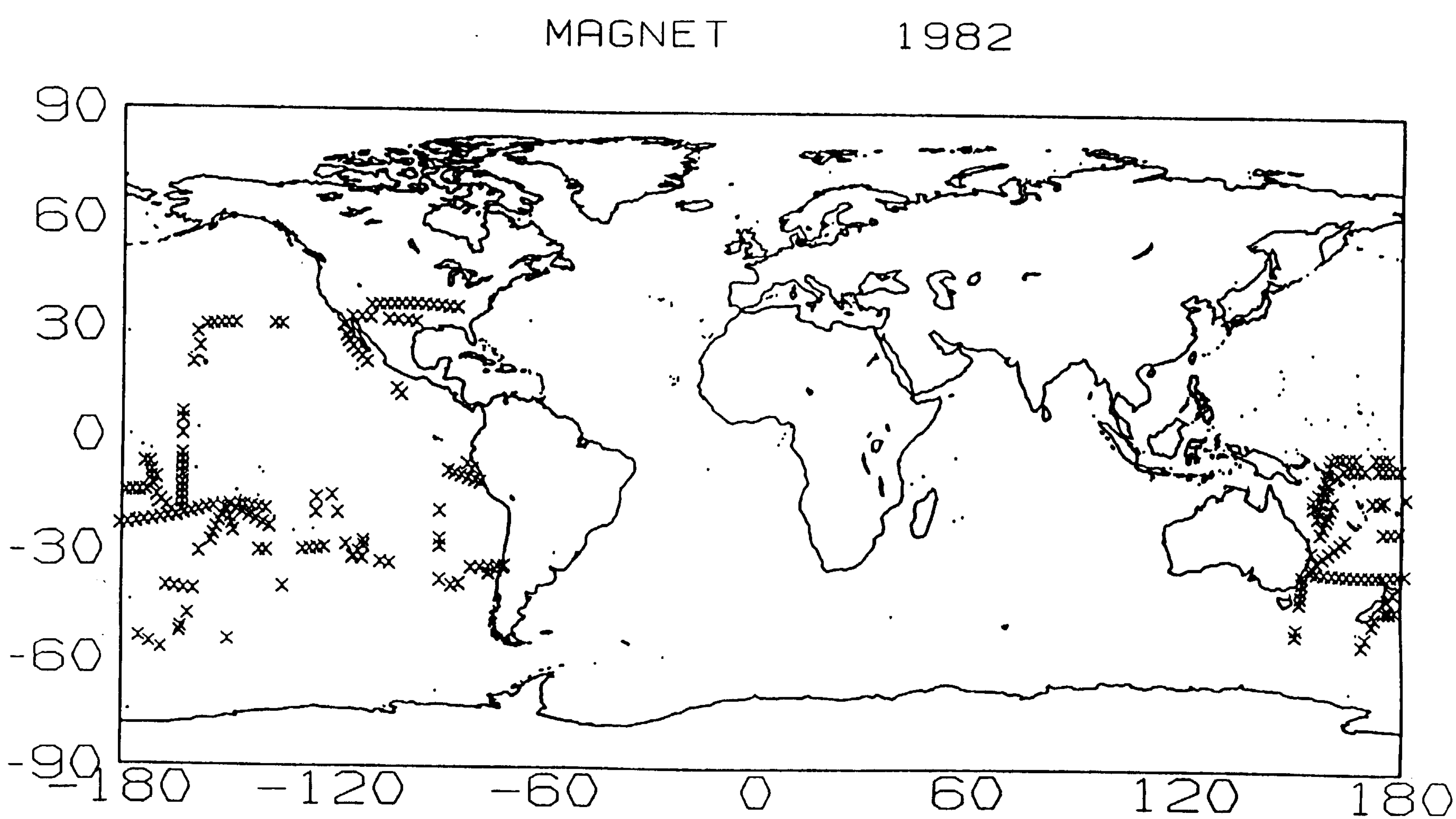
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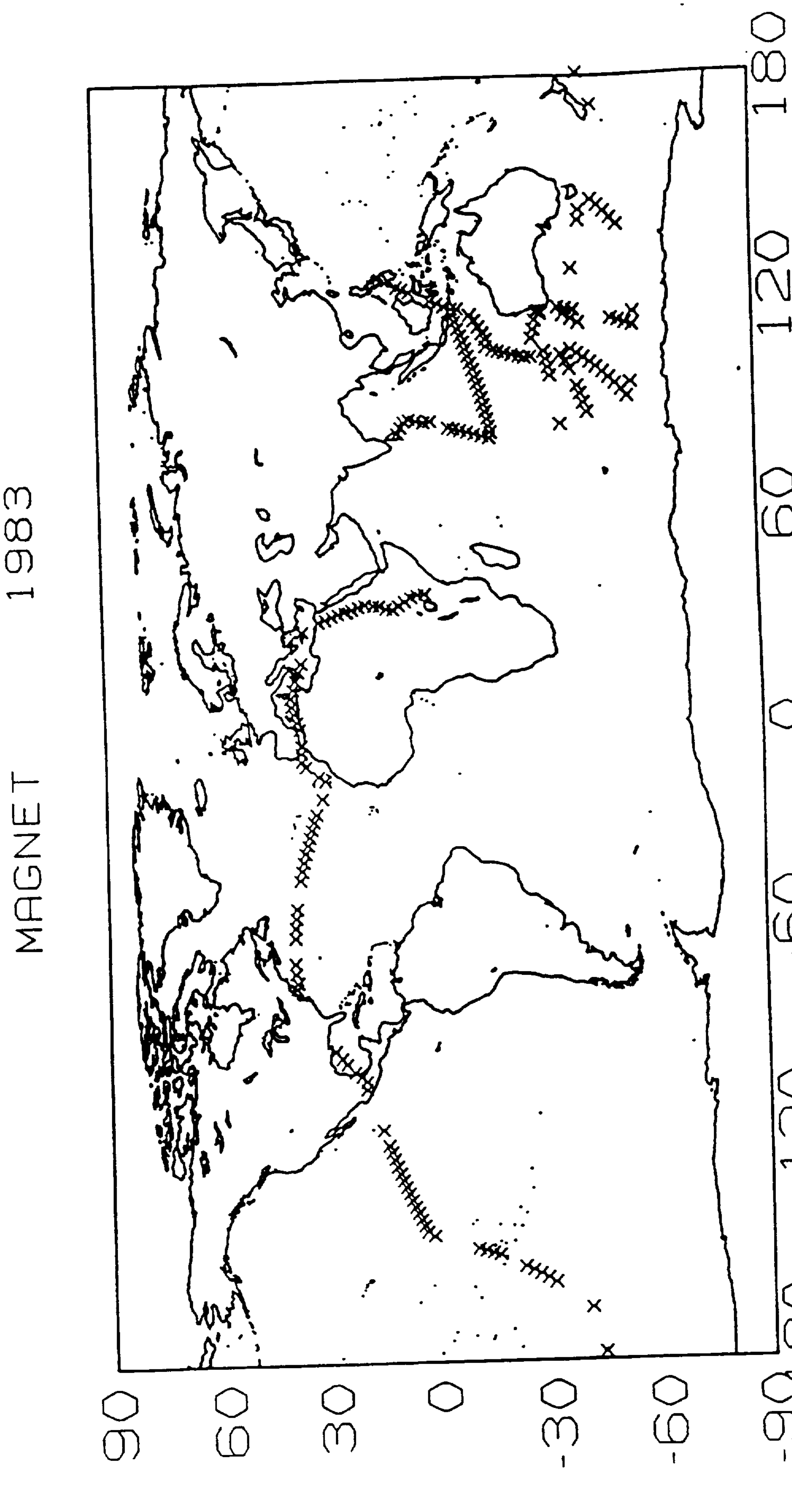

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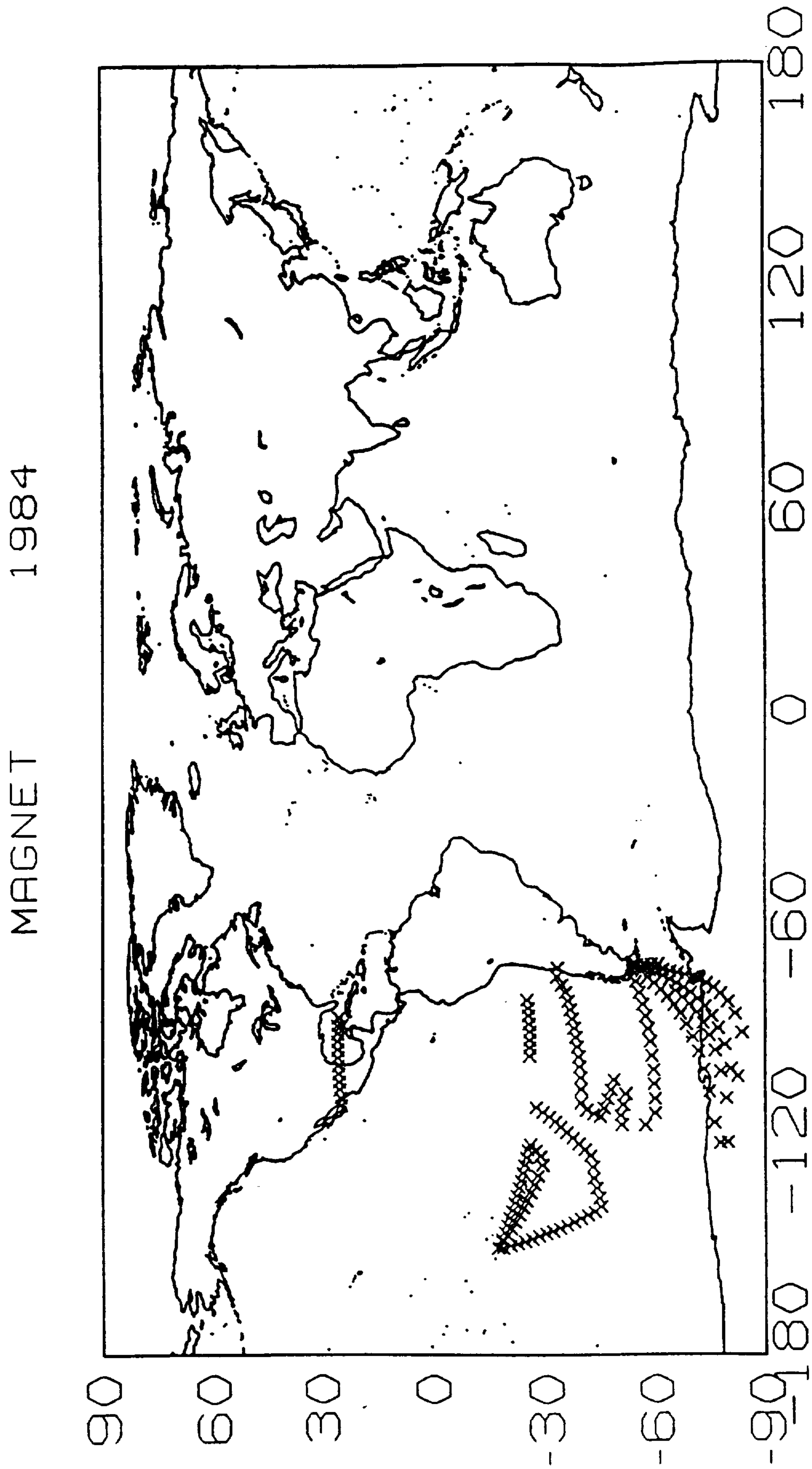
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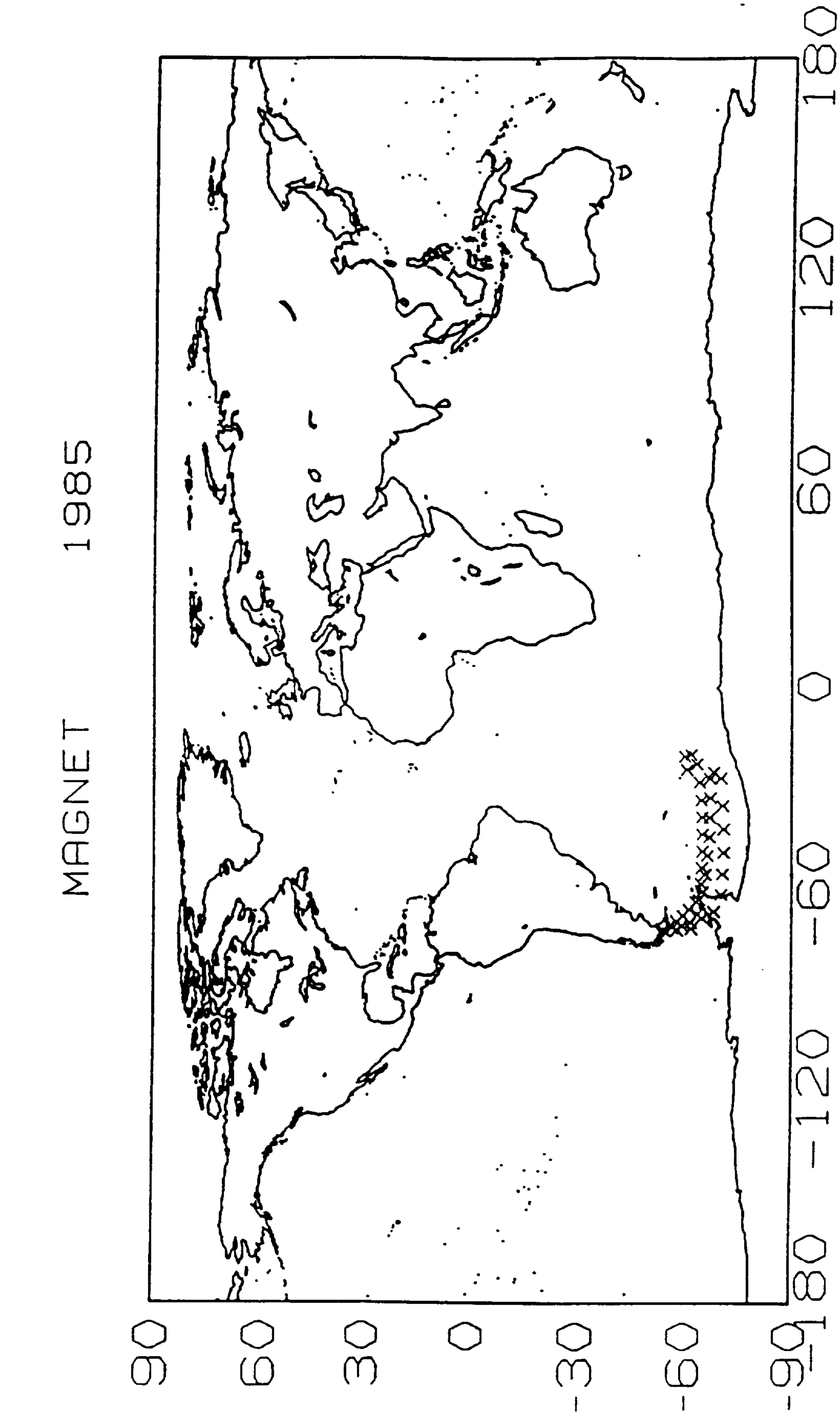
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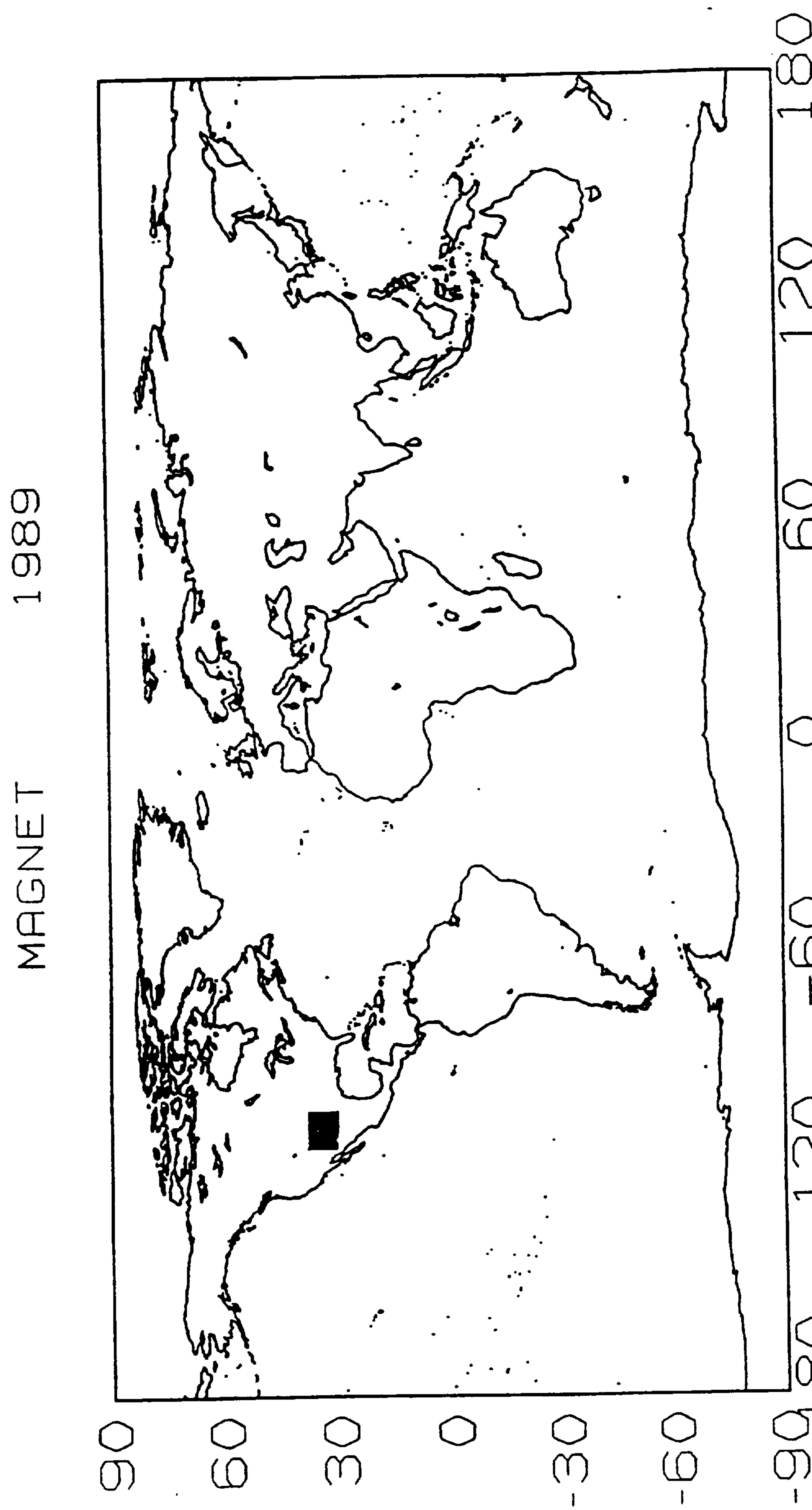
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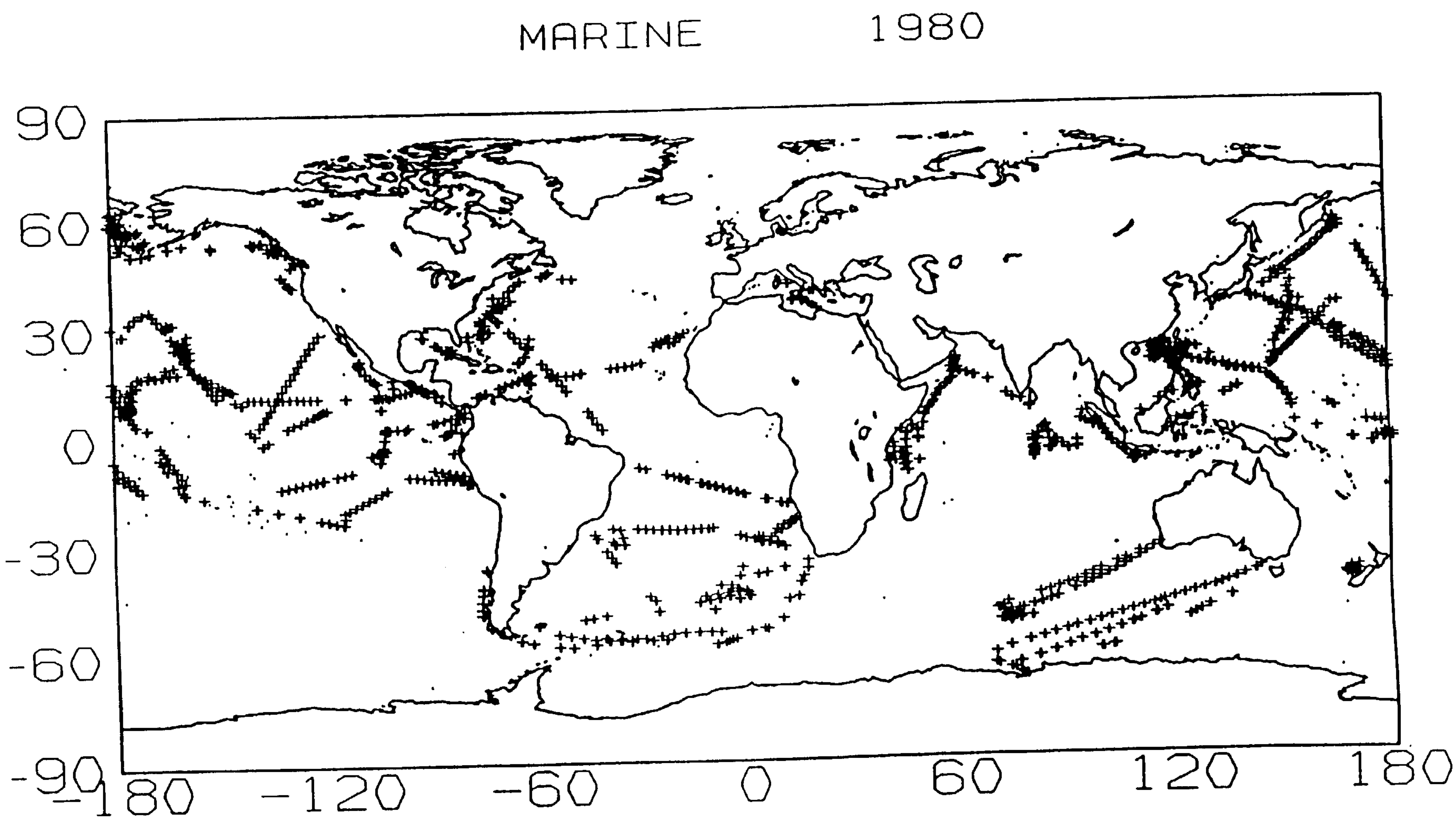
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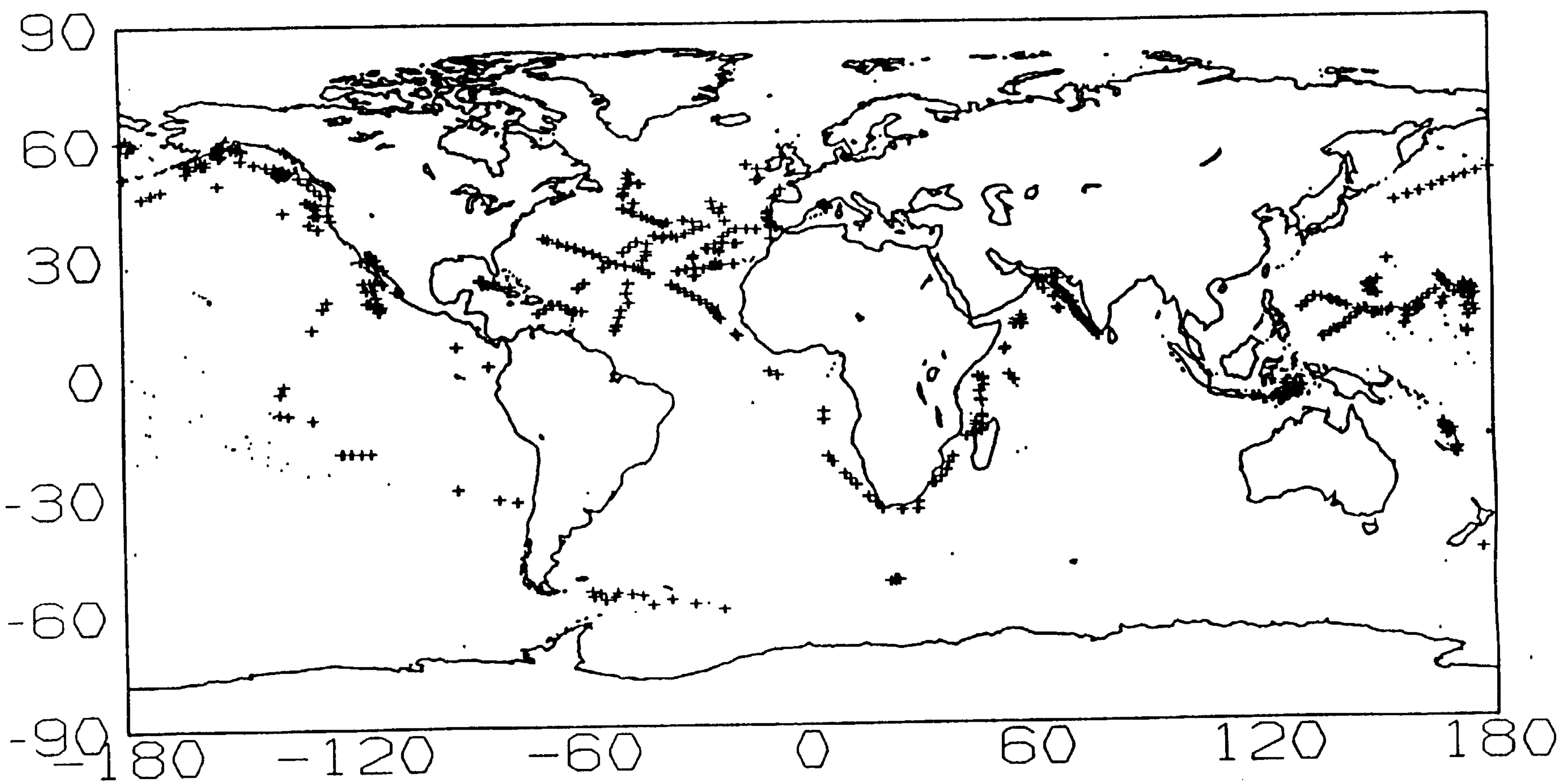

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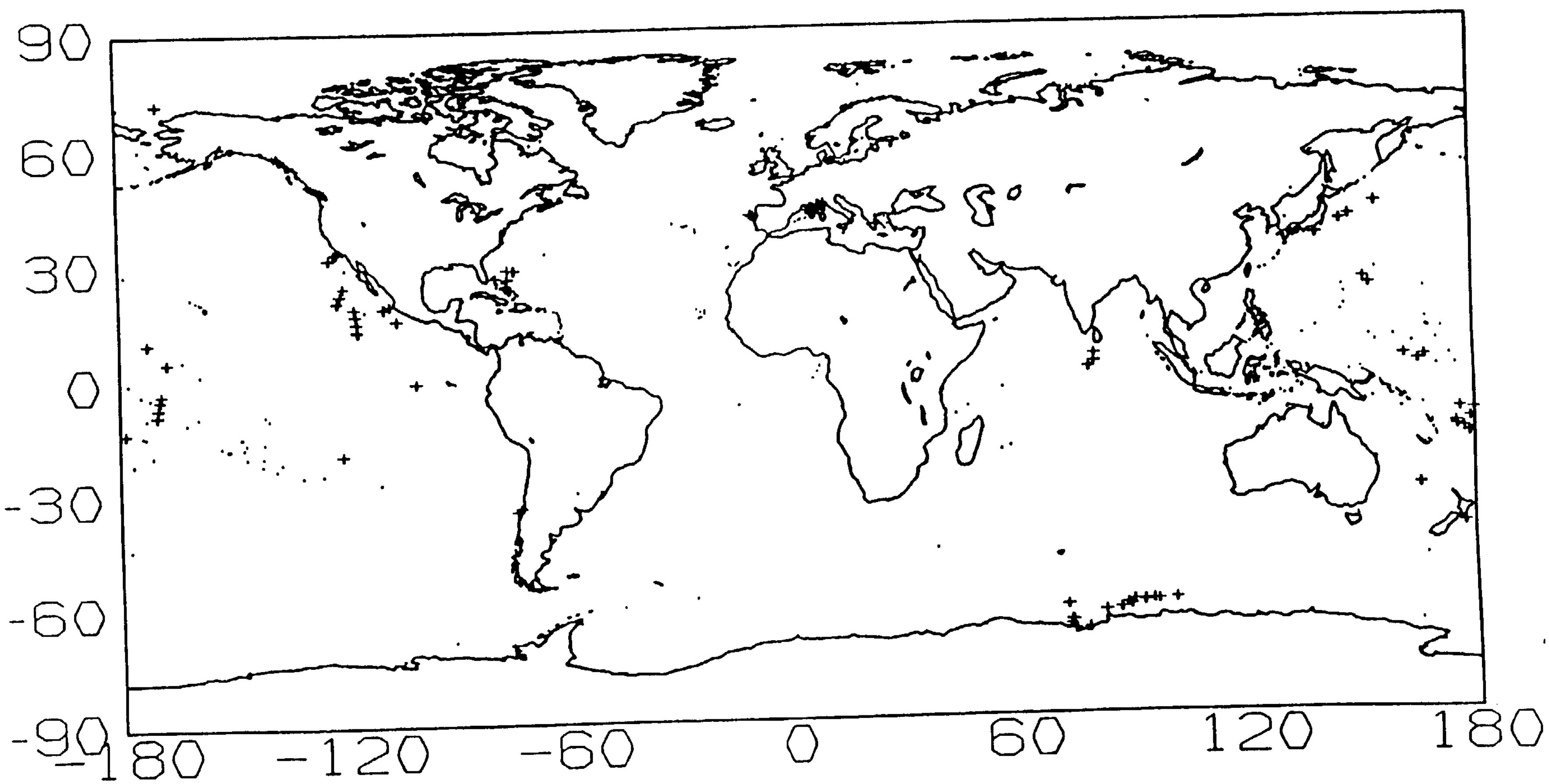

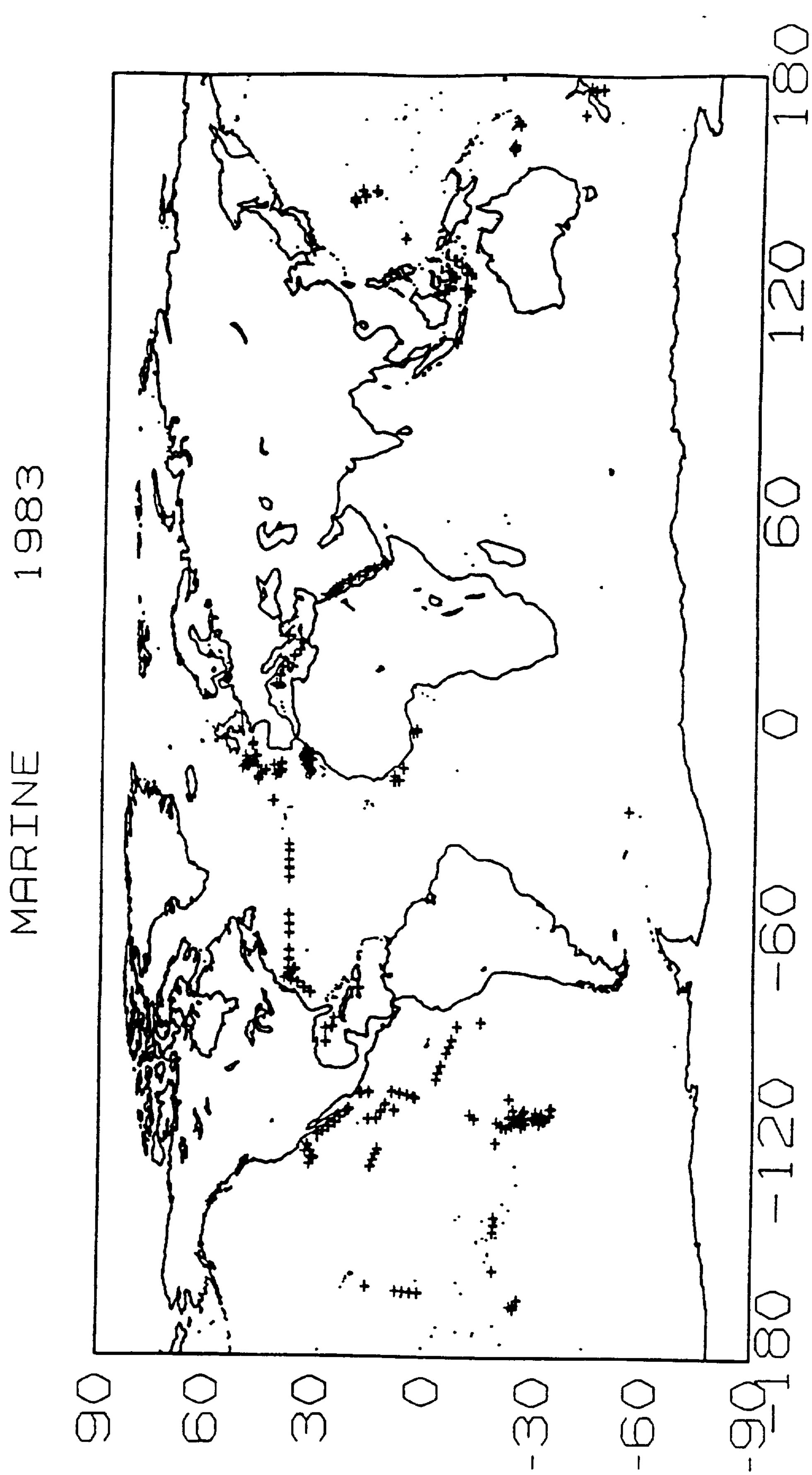

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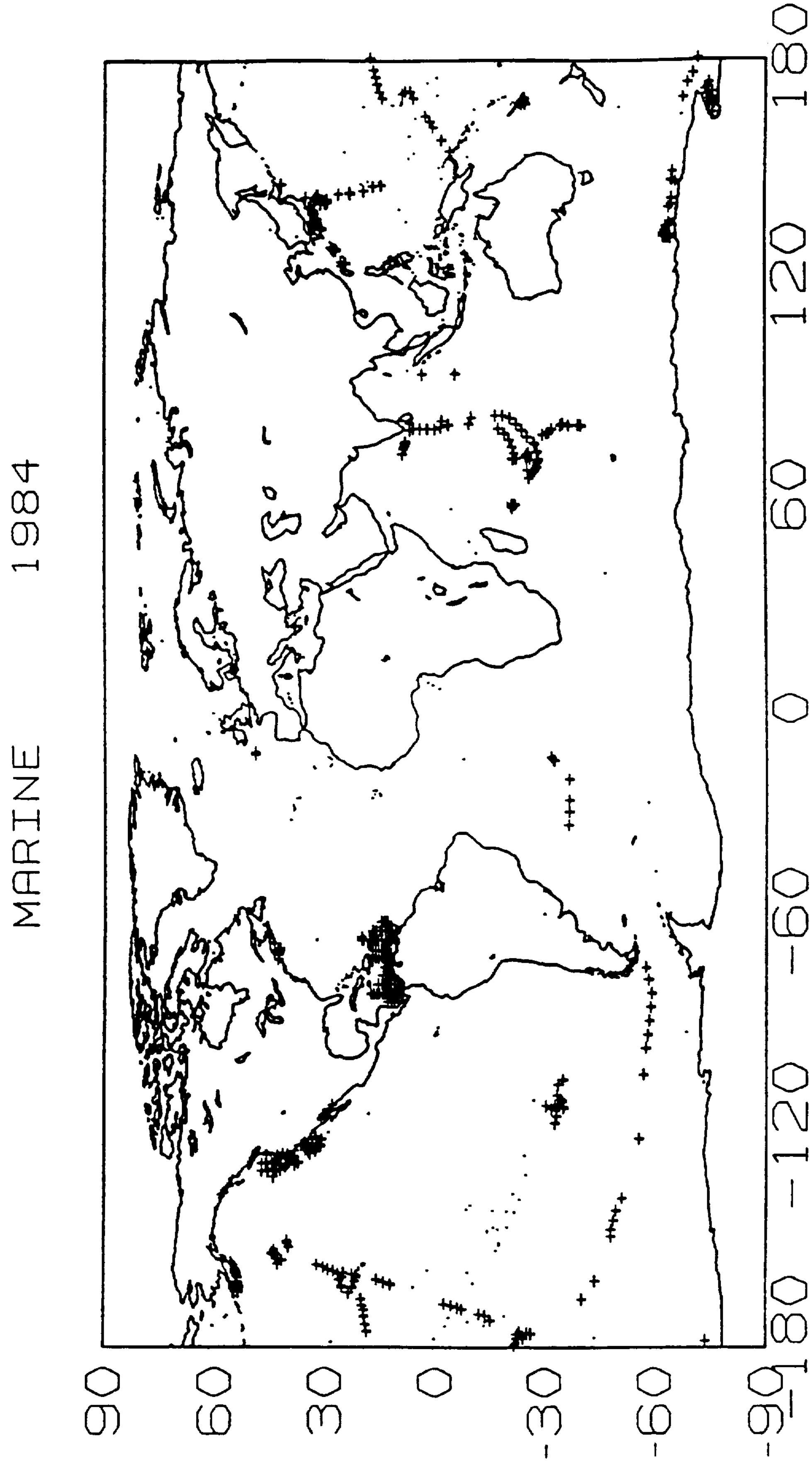
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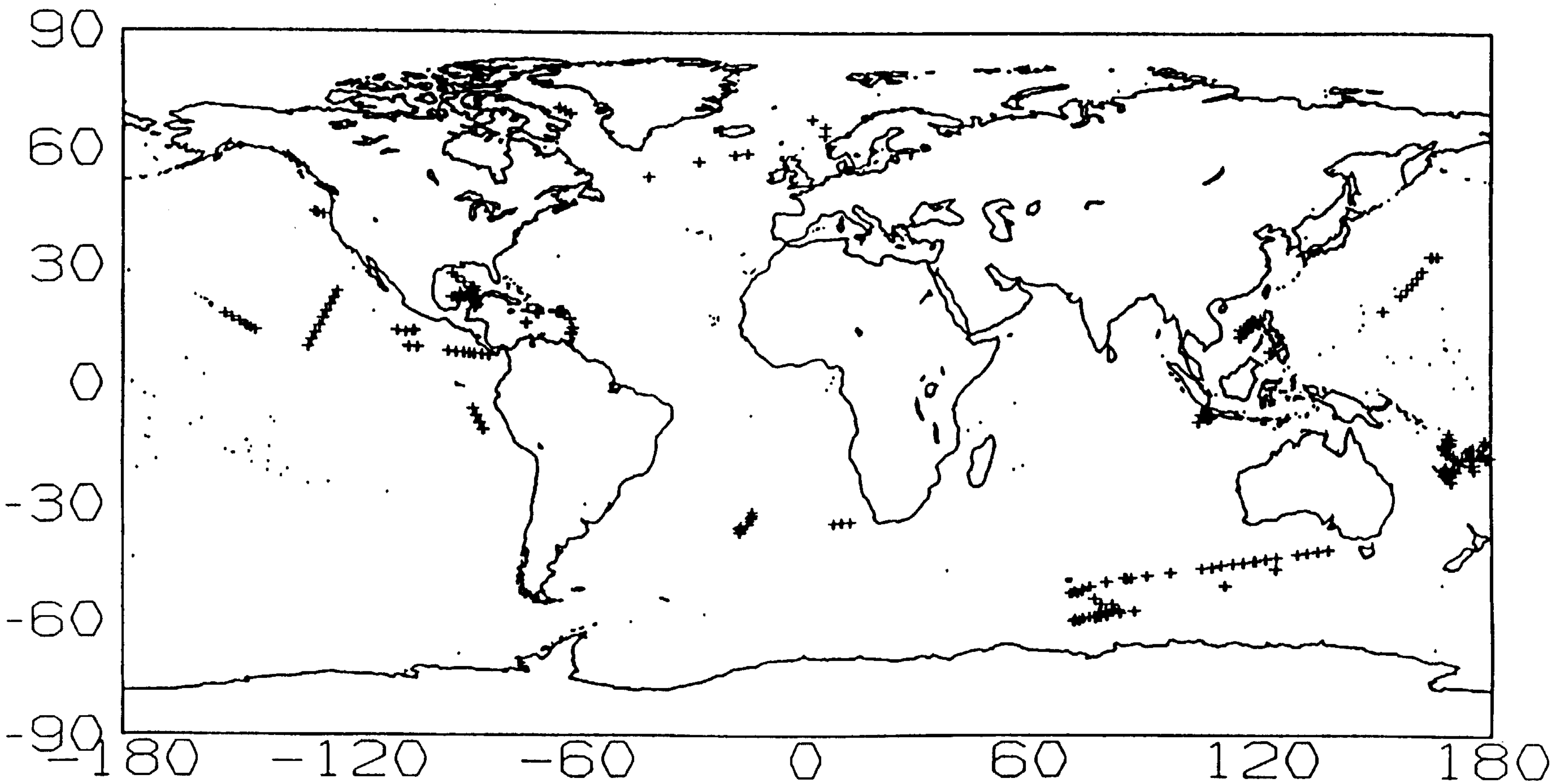
MARINE 1985



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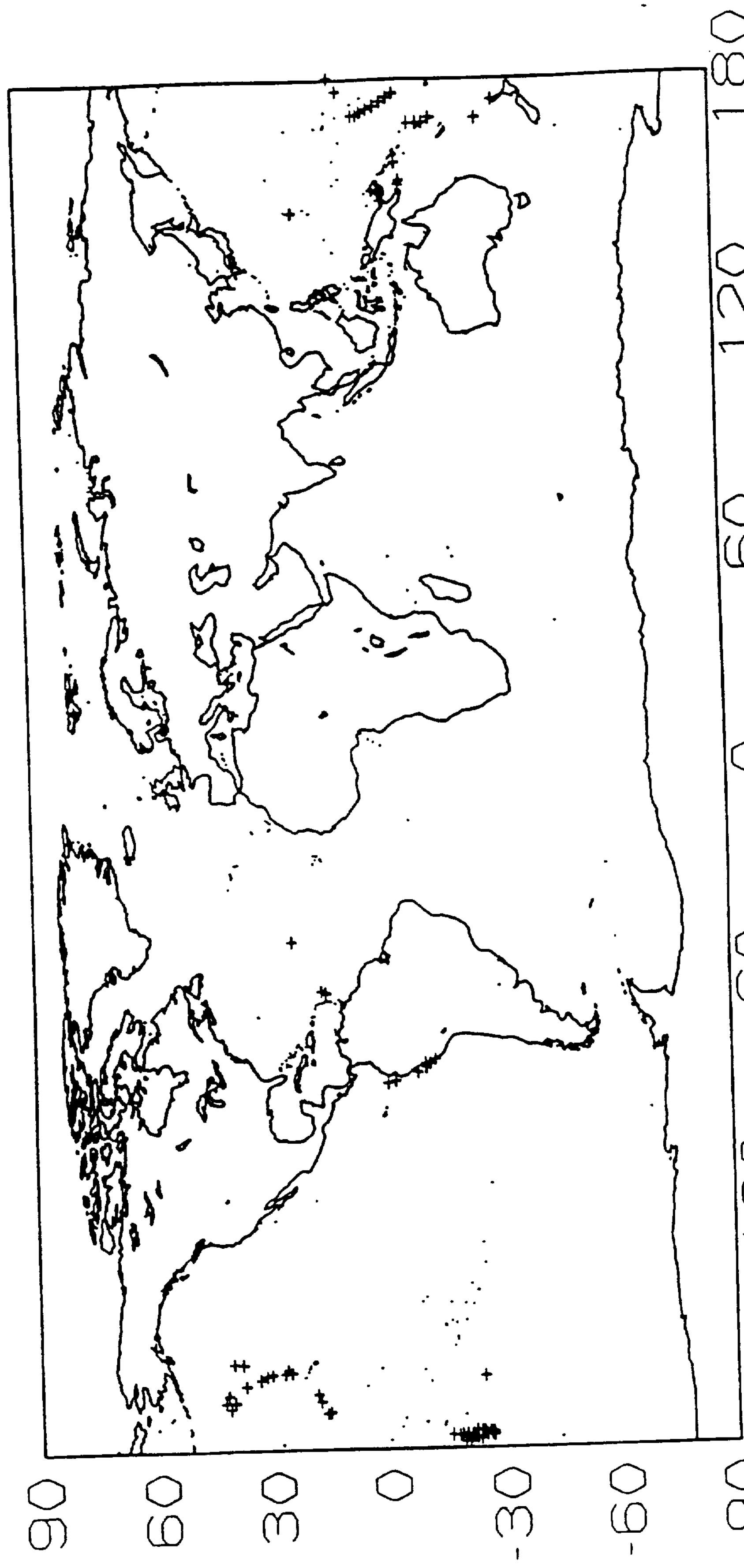

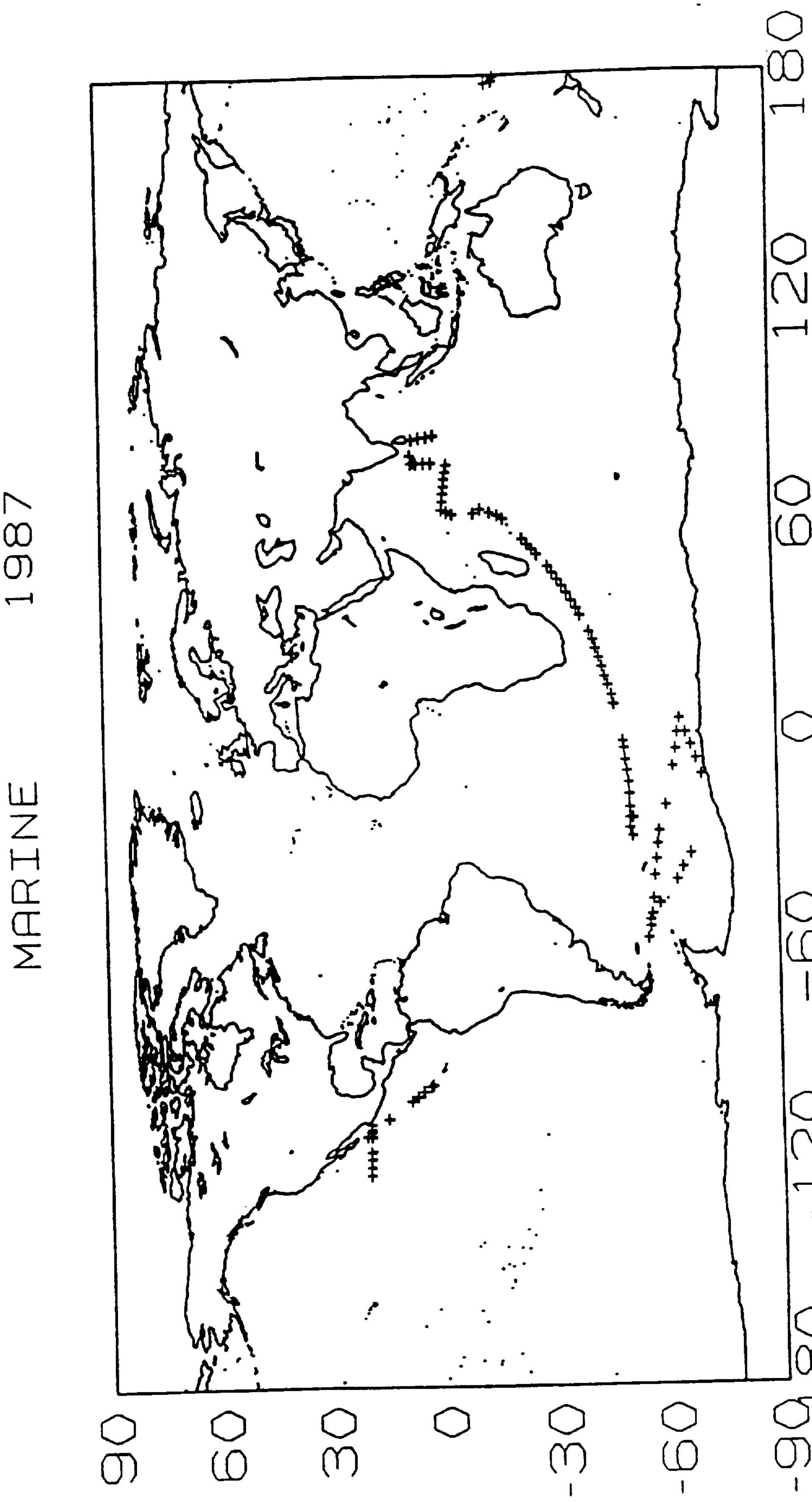
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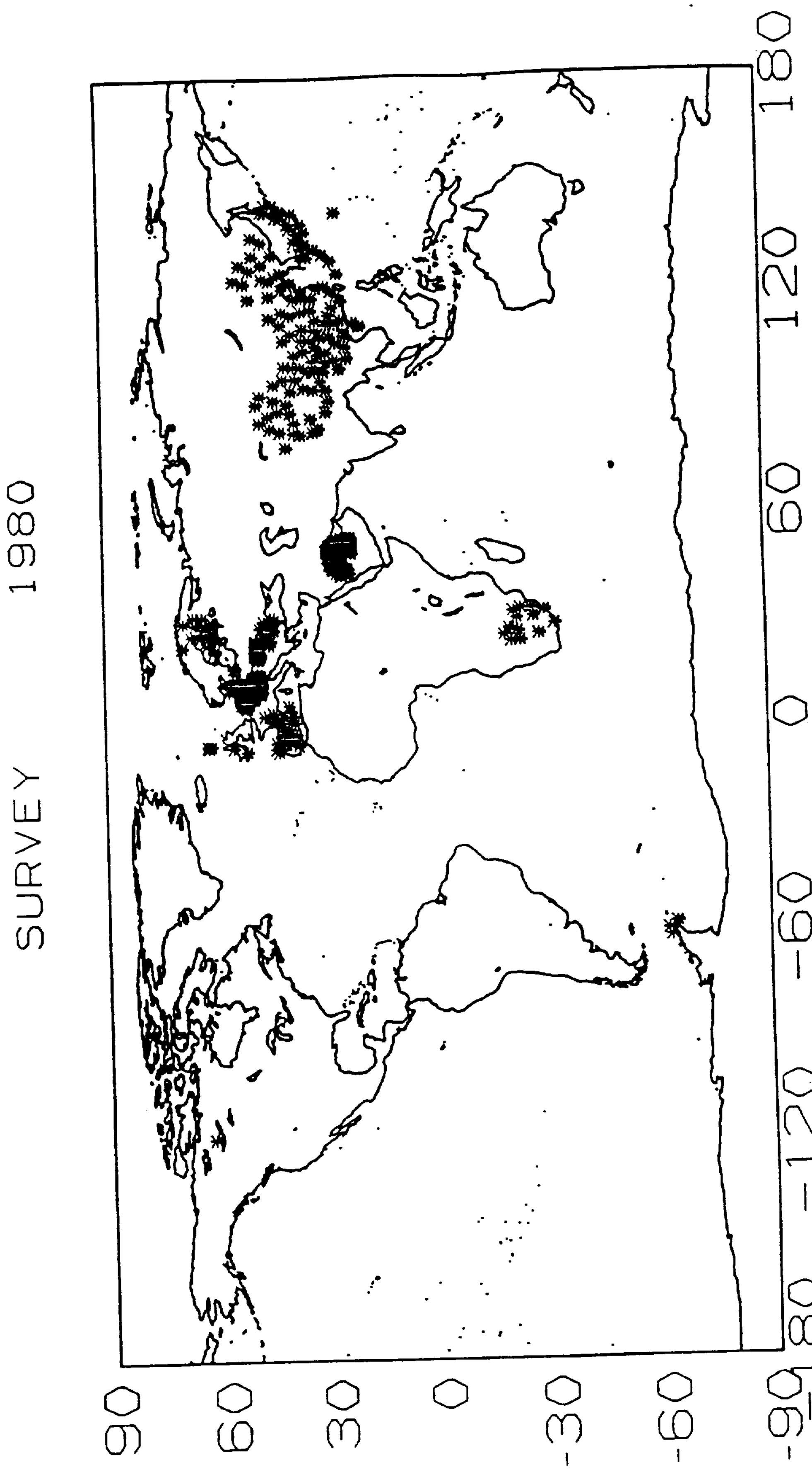
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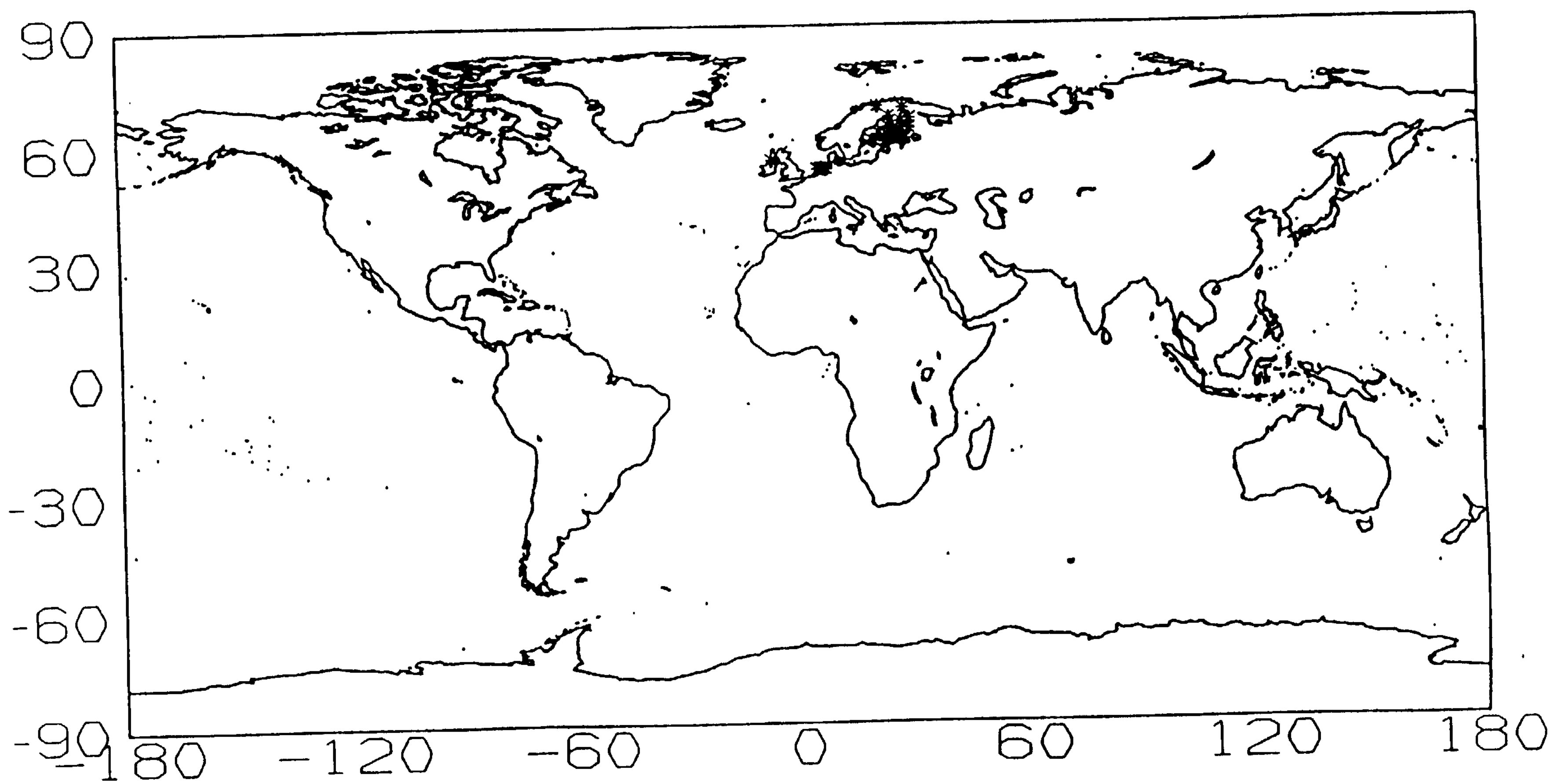
SURVEY 1981



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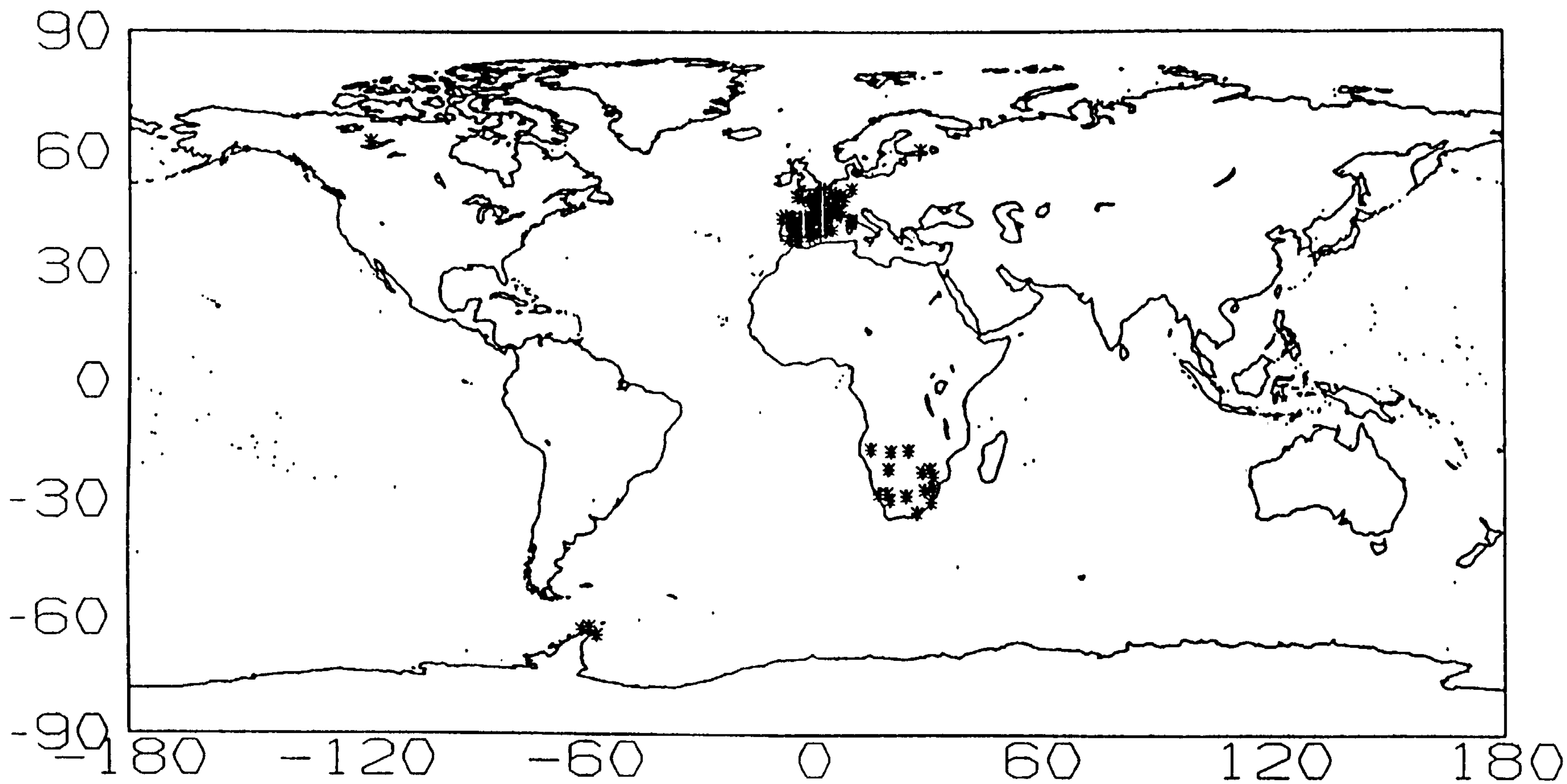

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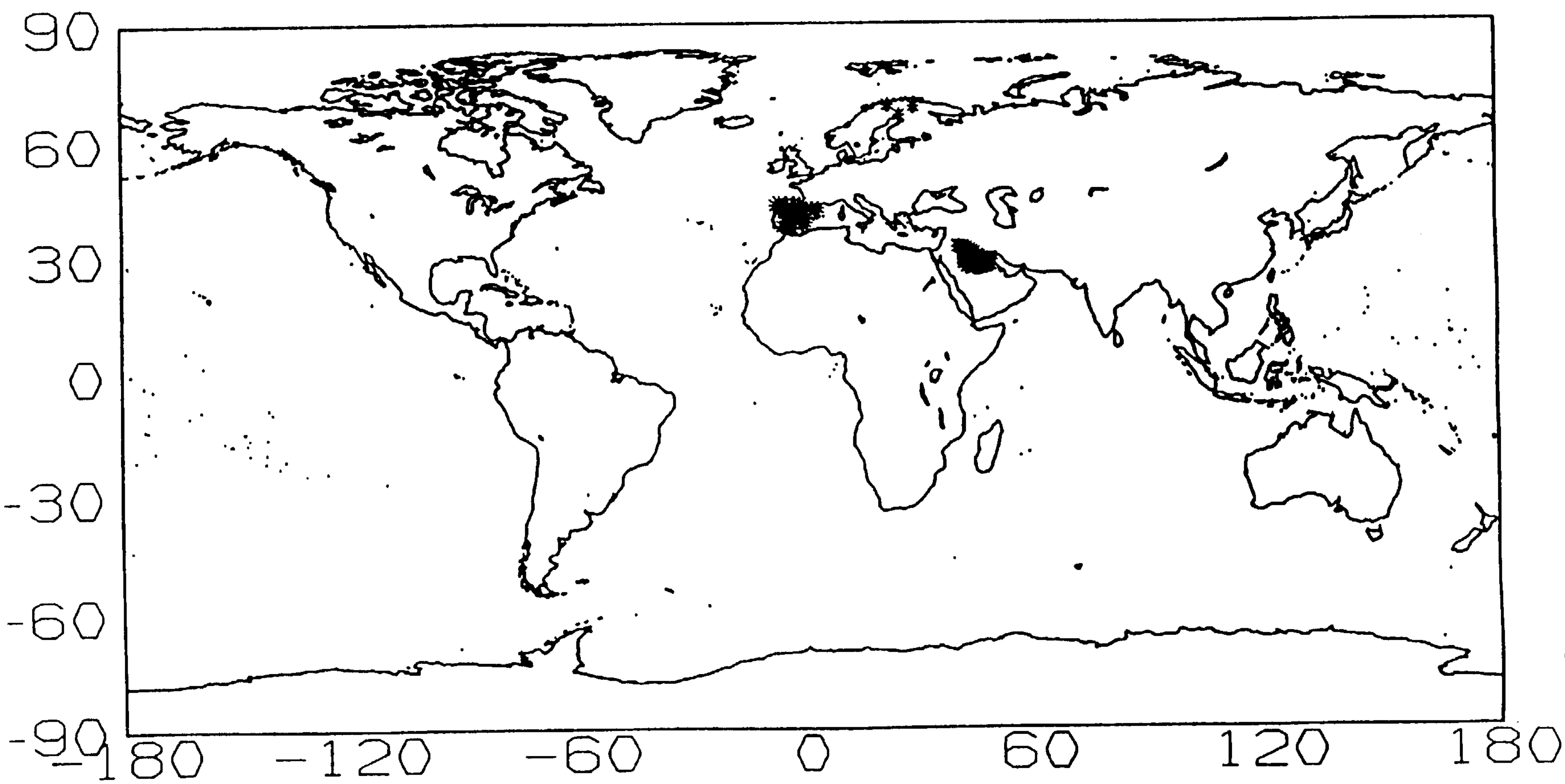

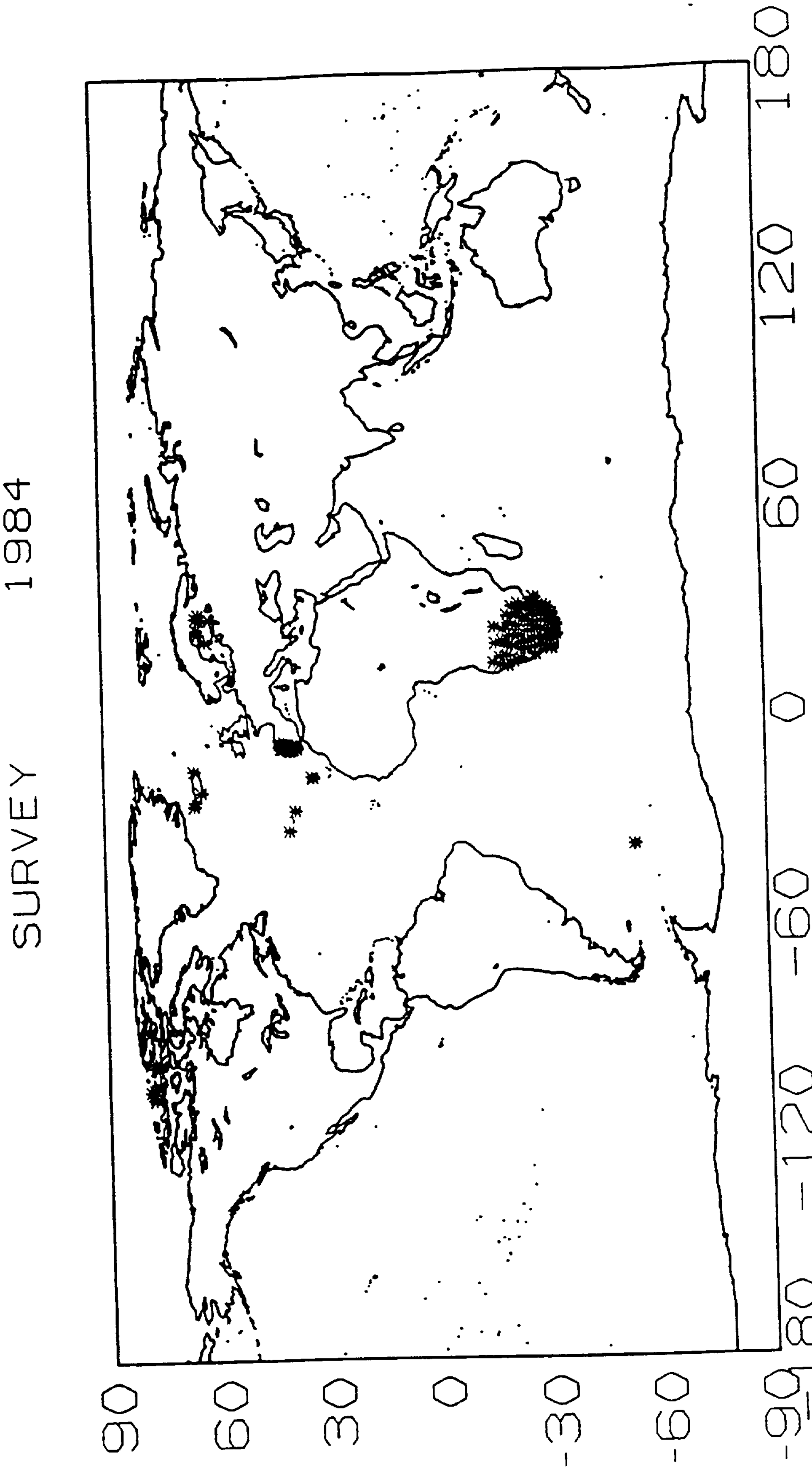

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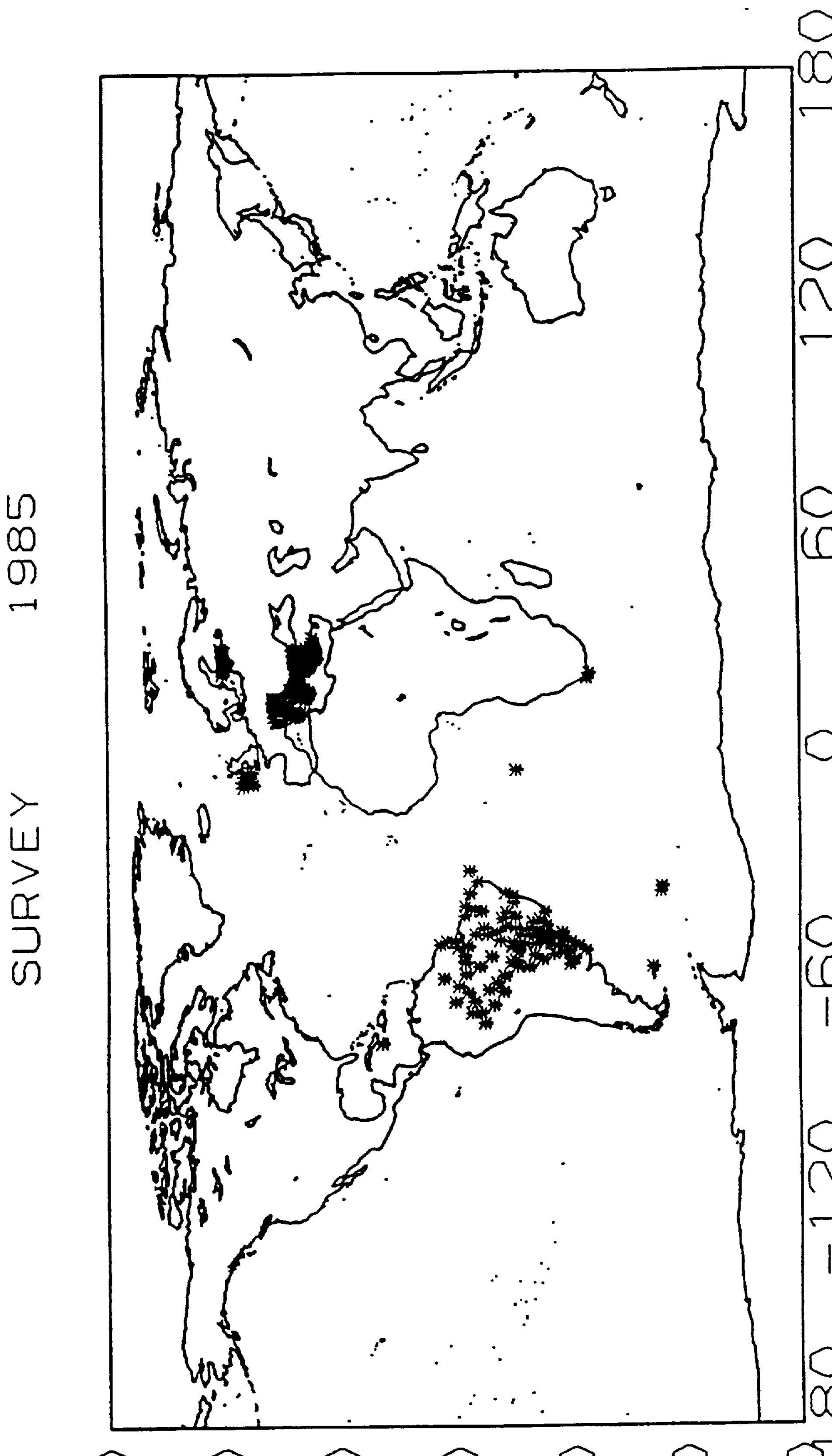
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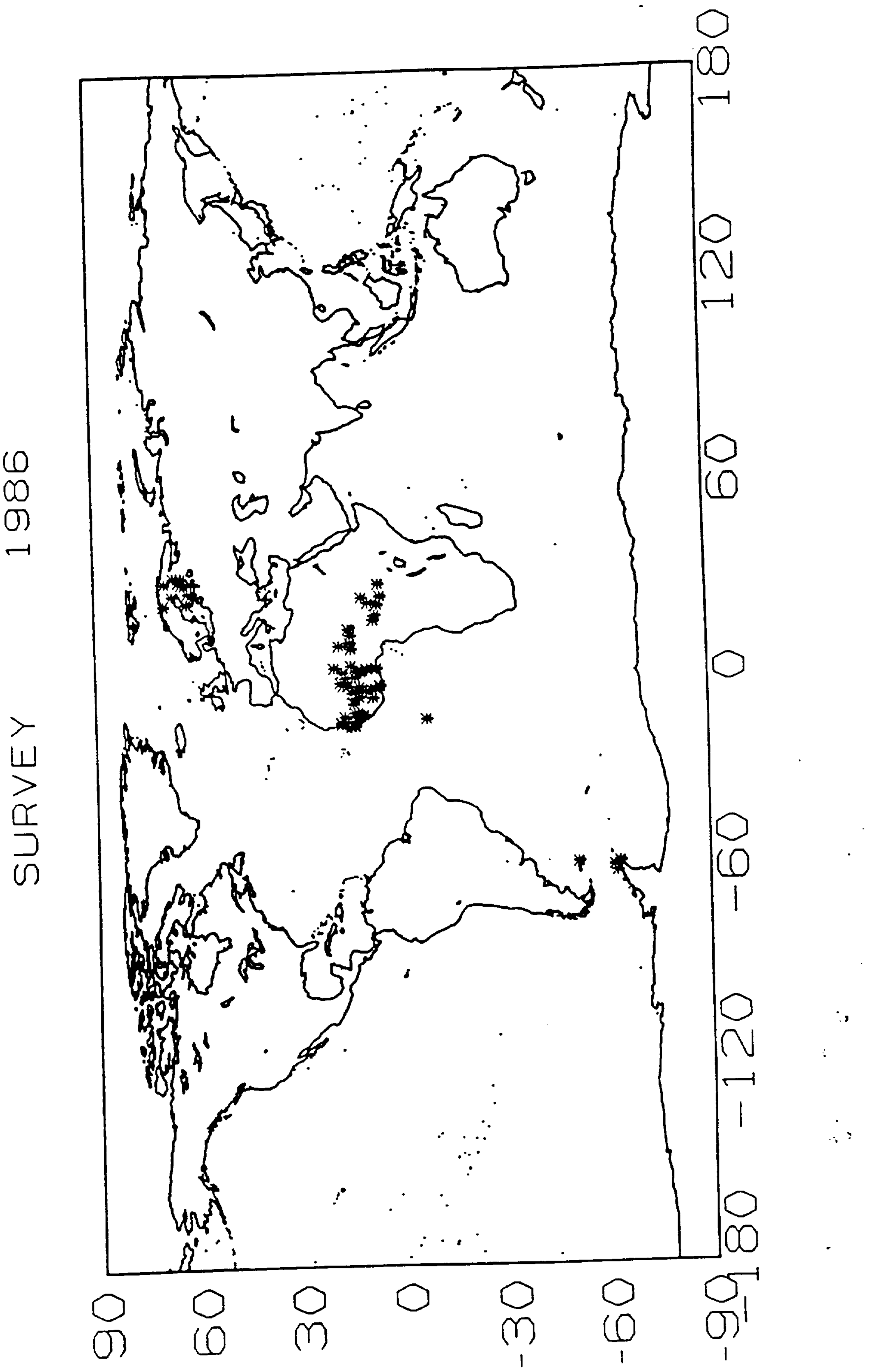
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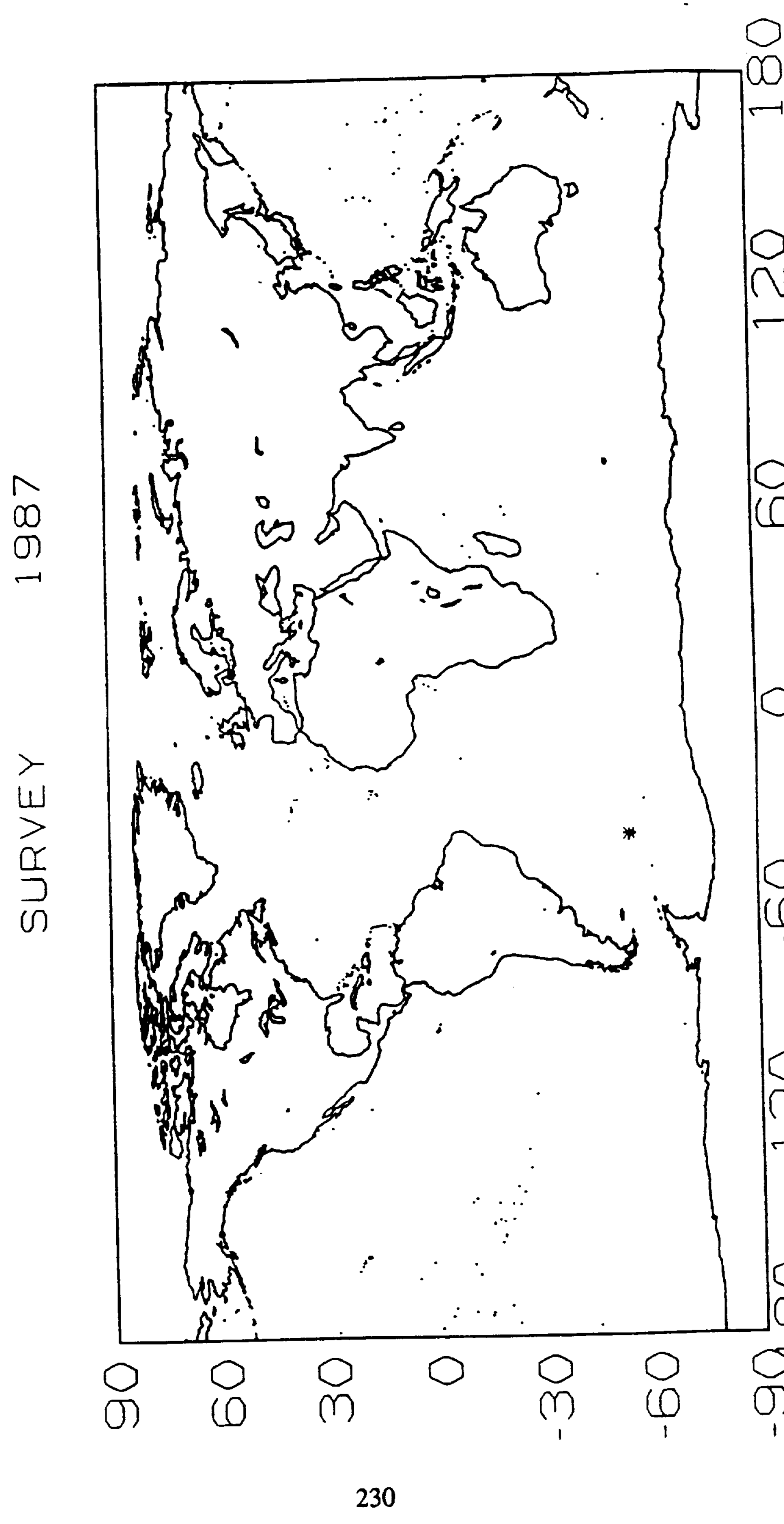
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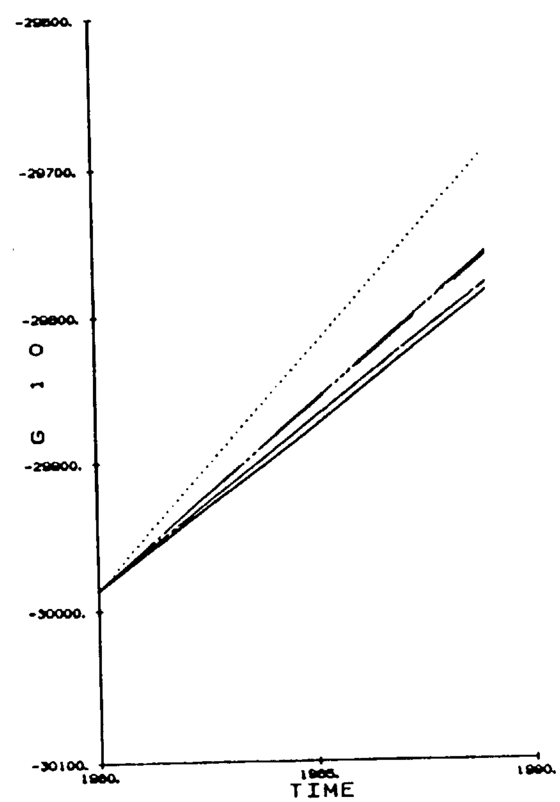
180

GSFC 5/89 & IGRF85



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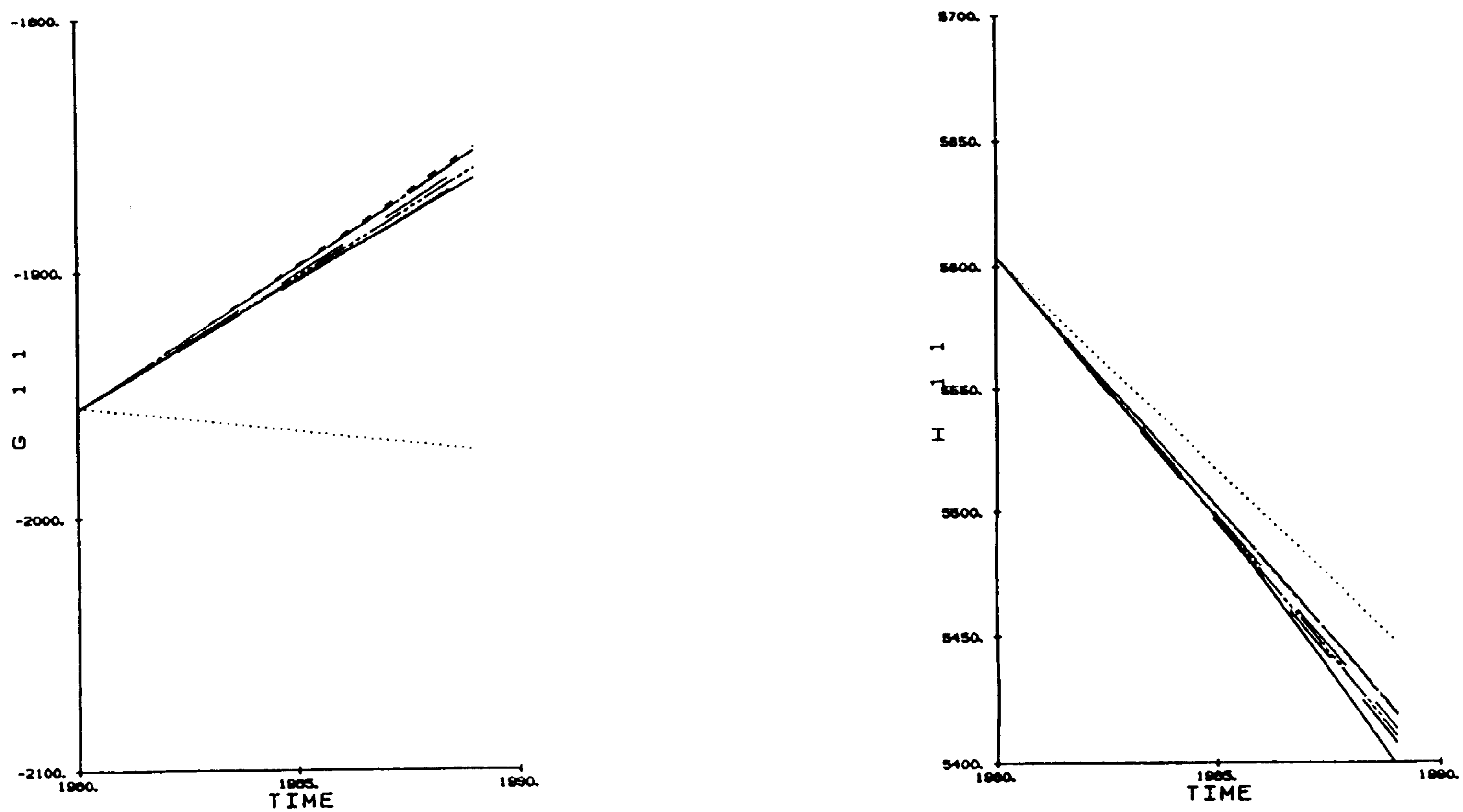
GSFC 5/89 & IGRF85



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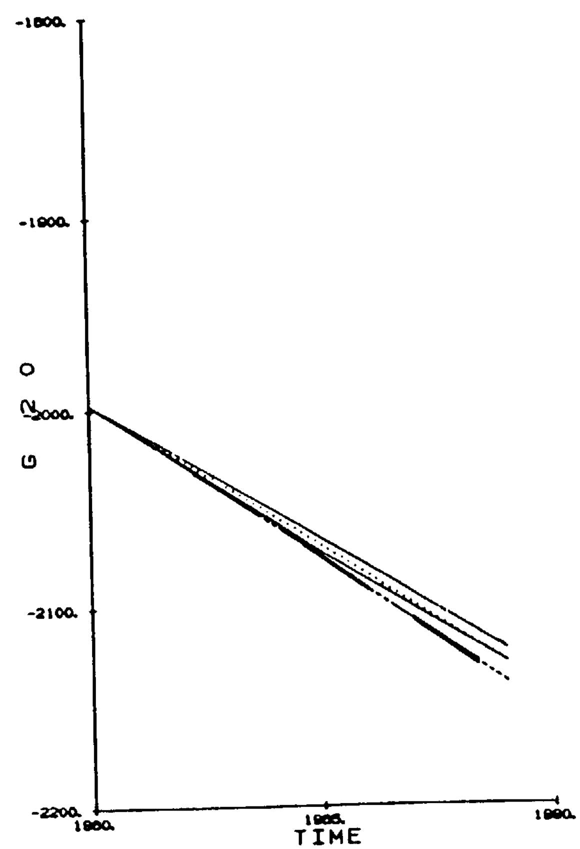
GSFC 5/89 & IGRF85



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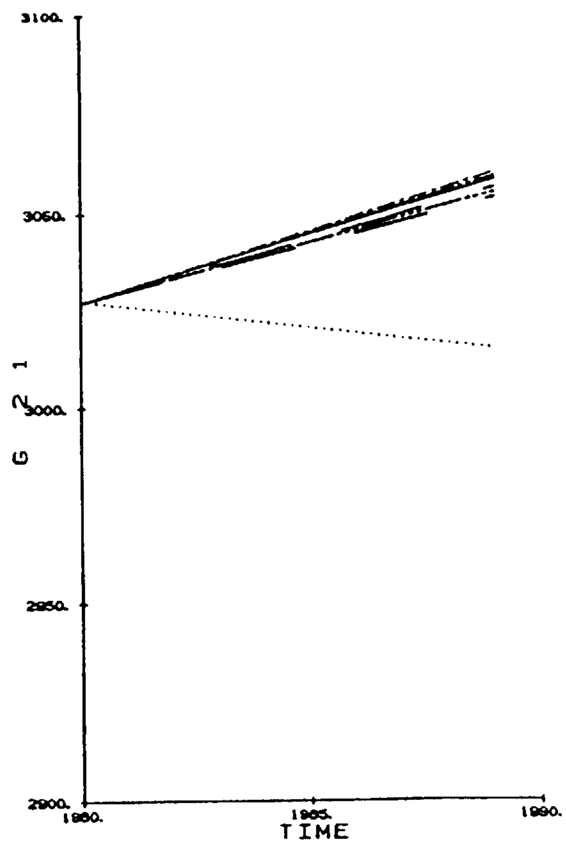
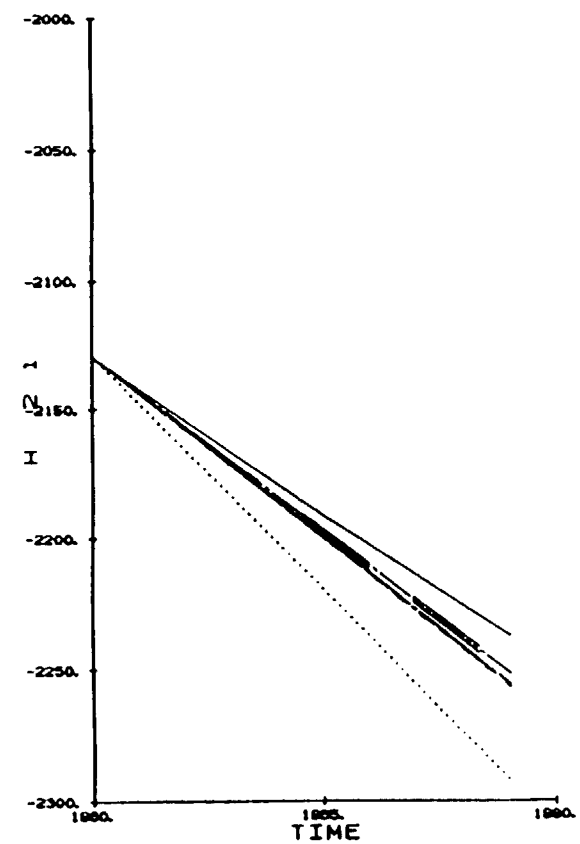
GSFC 5/89 & IGRF85





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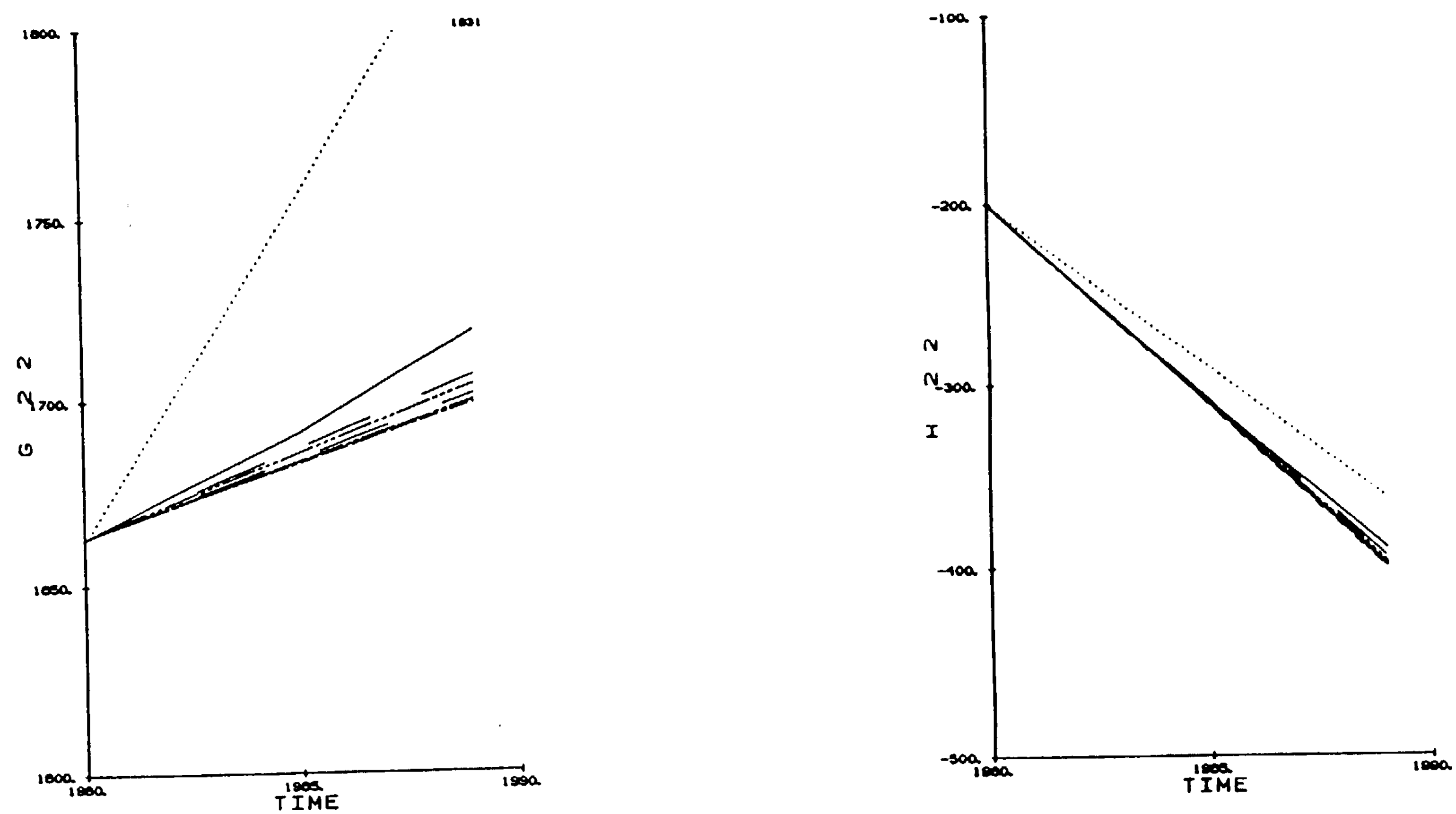
GSFC 5/89 & IGRF85



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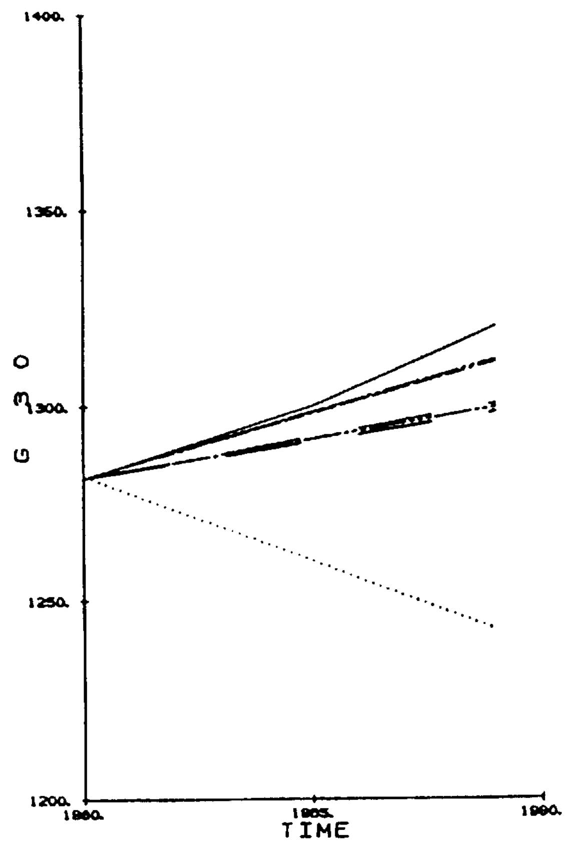
GSFC 5/89 & IGRF85



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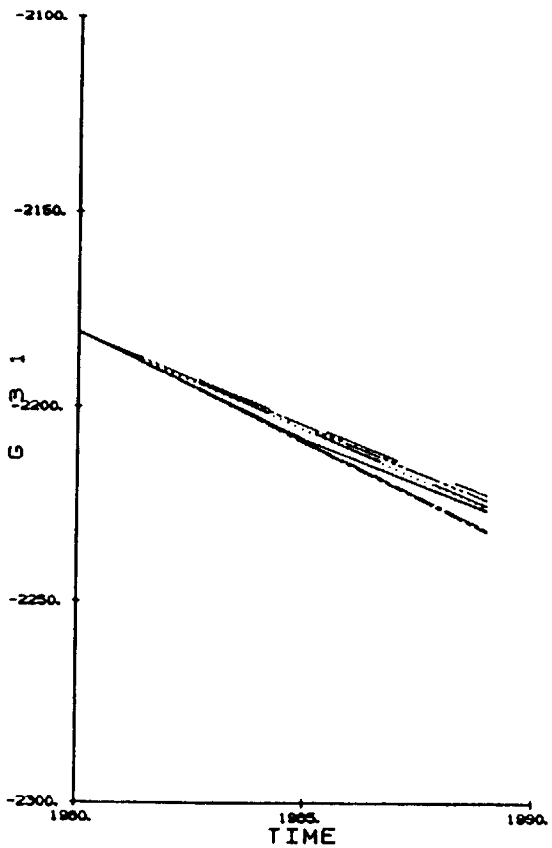
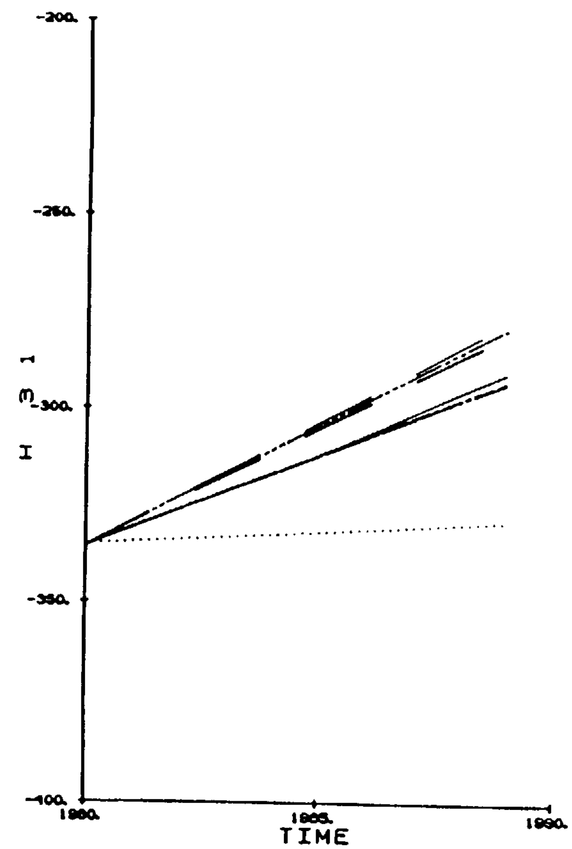
GSFC 5/89 & IGRF85





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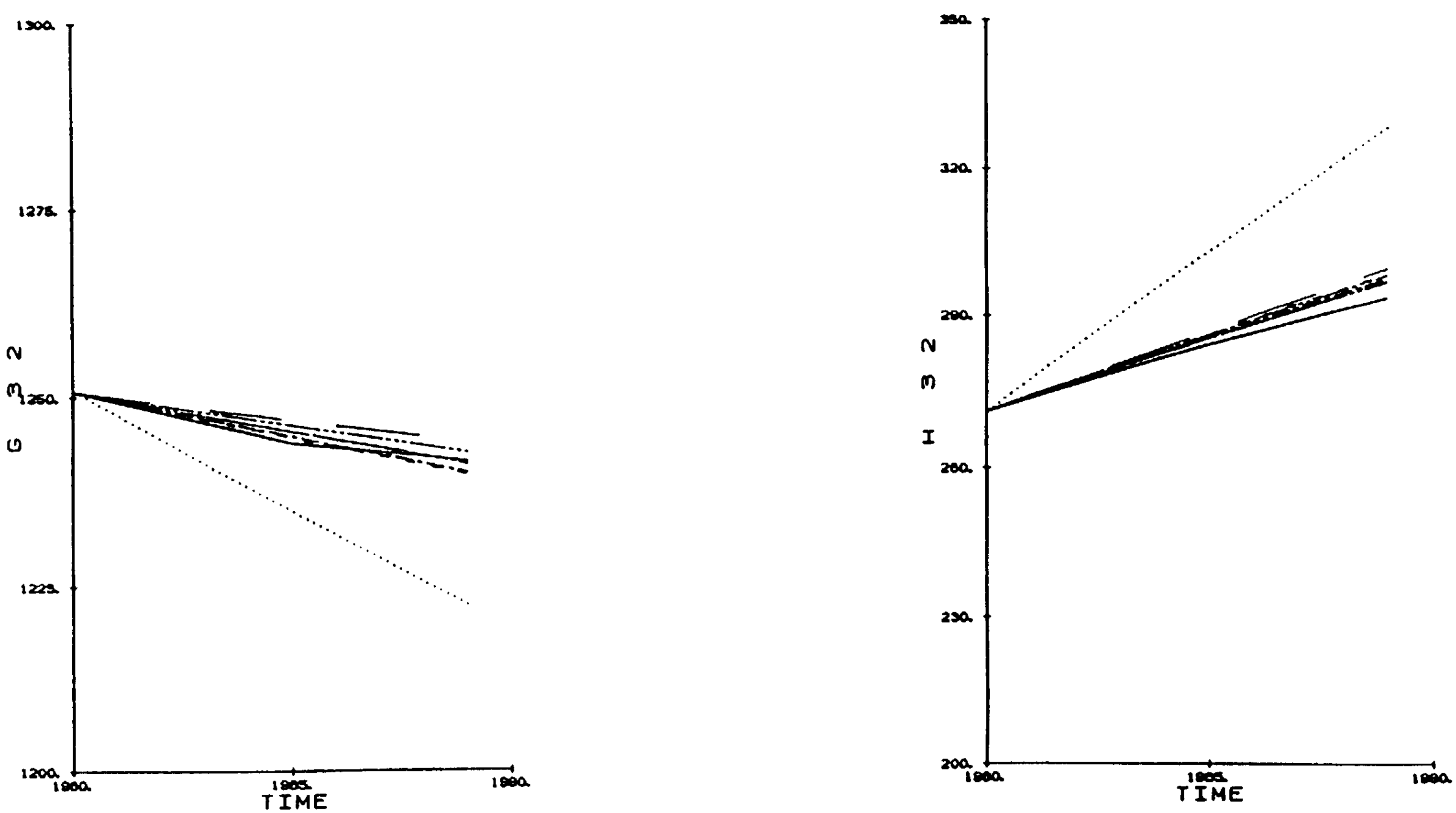
GSFC 5/89 & IGRF85



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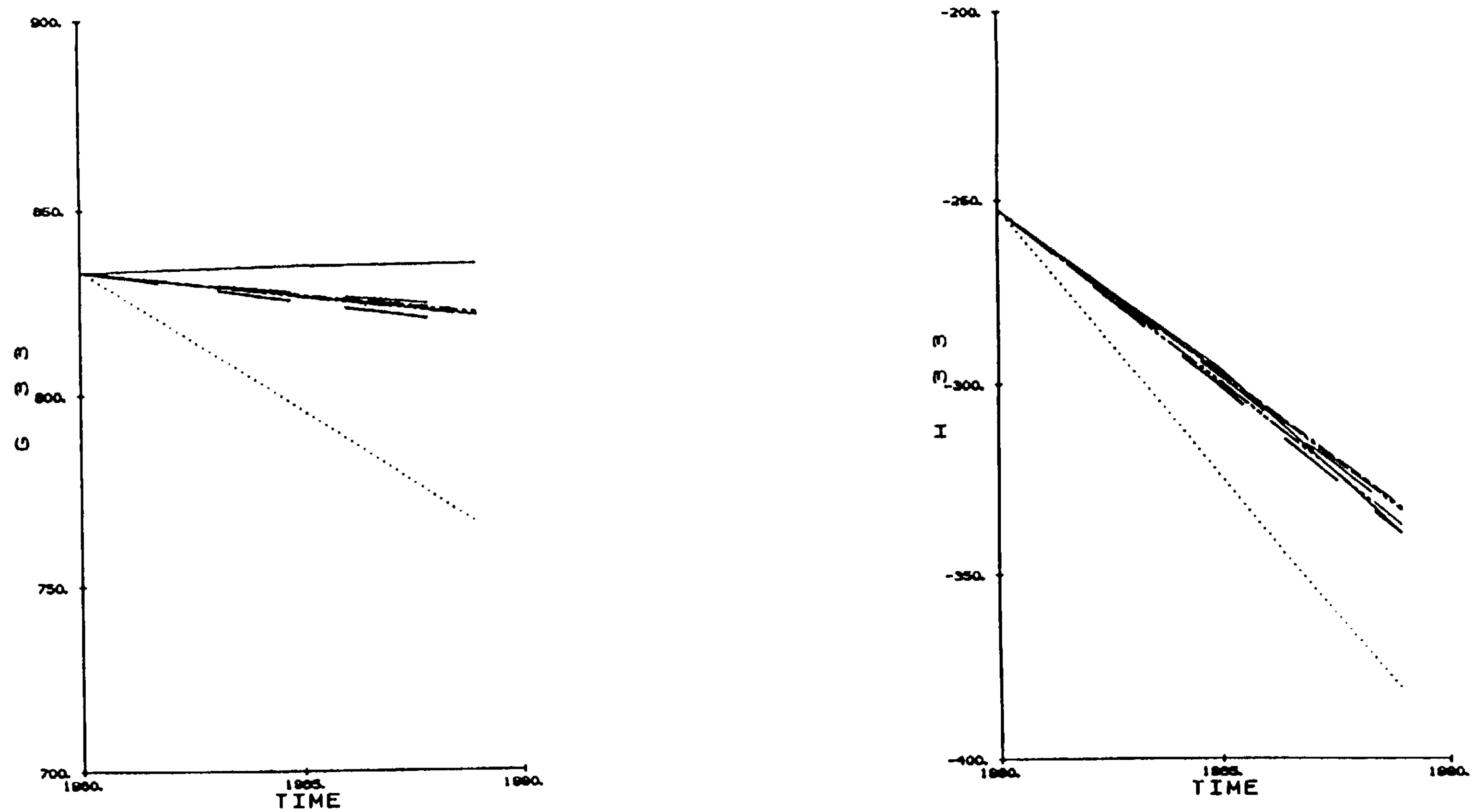
GSFC 5/89 & IGRF85



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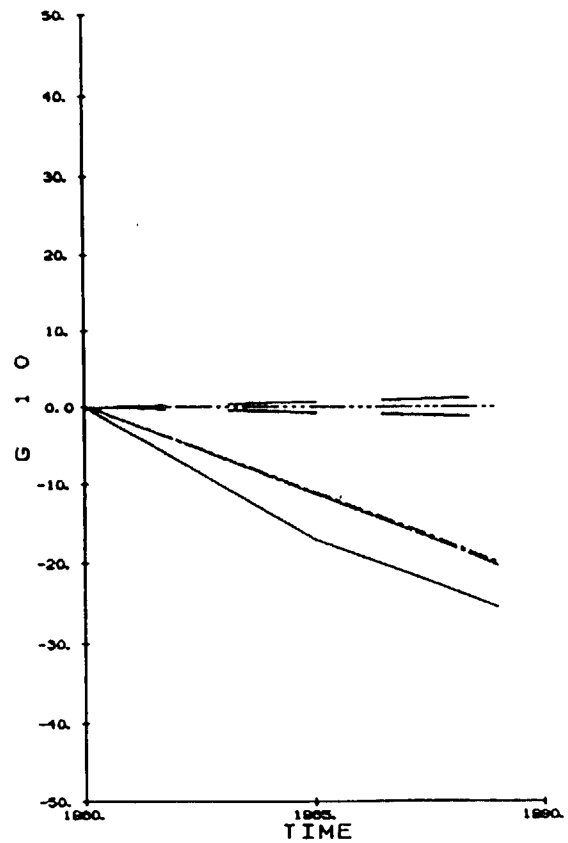
GSFC 5/89 - 5/89-4



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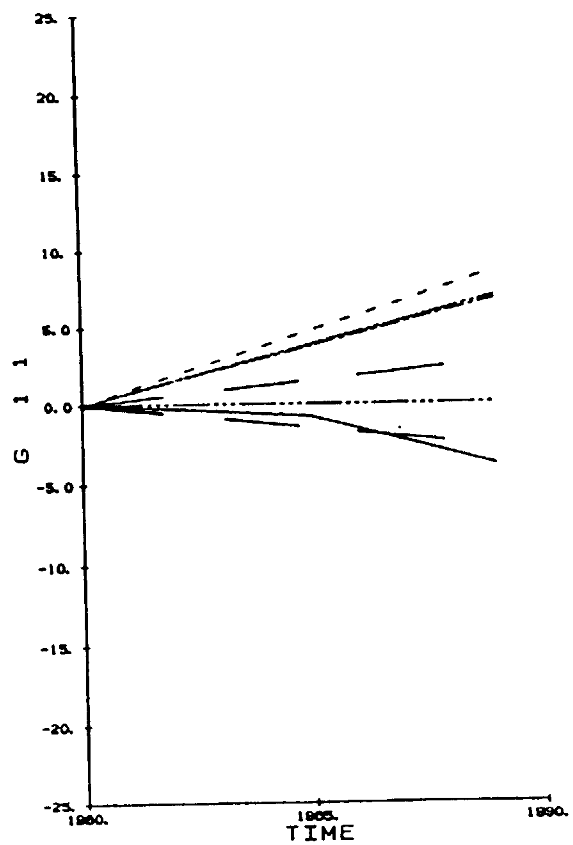
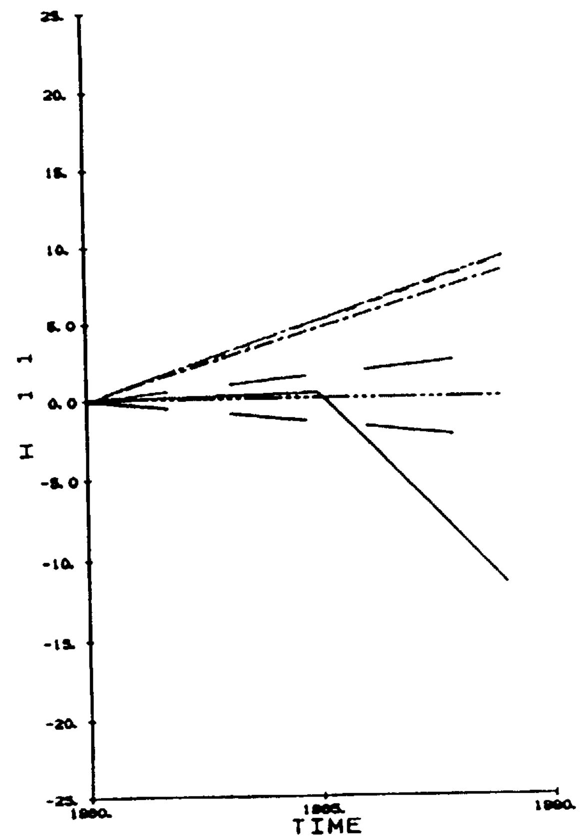
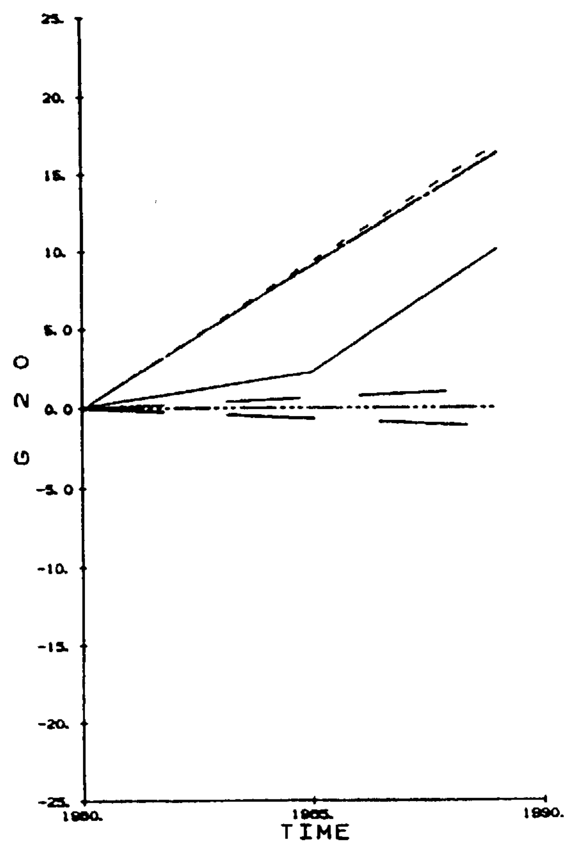




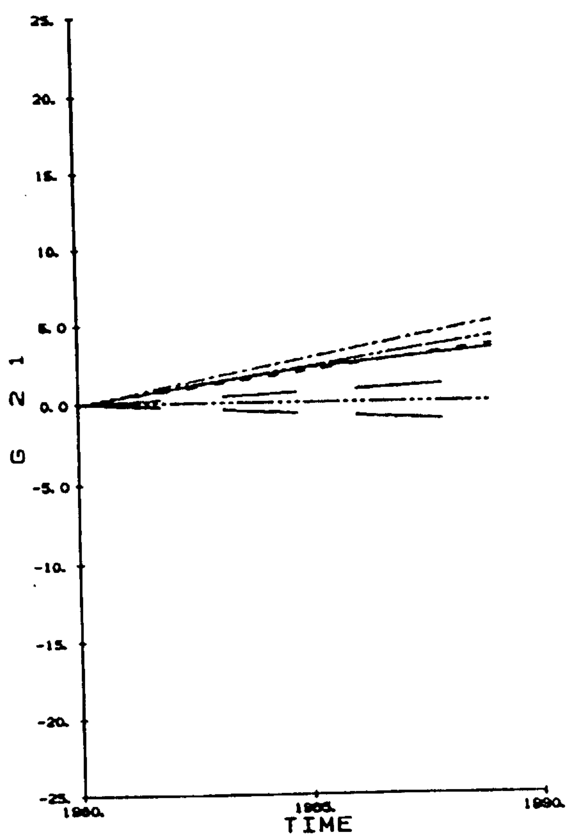
IGRF85 —— 5/89-1 ---- 5/89-2 -·-· 5/89-3 -··- 5/89-4 -···- (SIGMA — —)

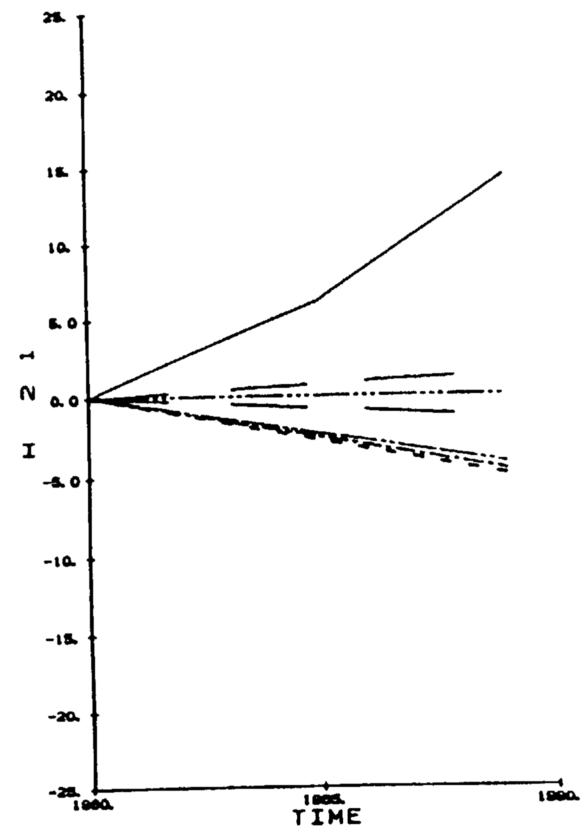
GSFC 5/89 - 5/89-4



IGRF85 —— 5/89-1 ---- 5/89-2 -.-. 5/89-3 -..- 5/89-4 -...- (SIGMA — —)

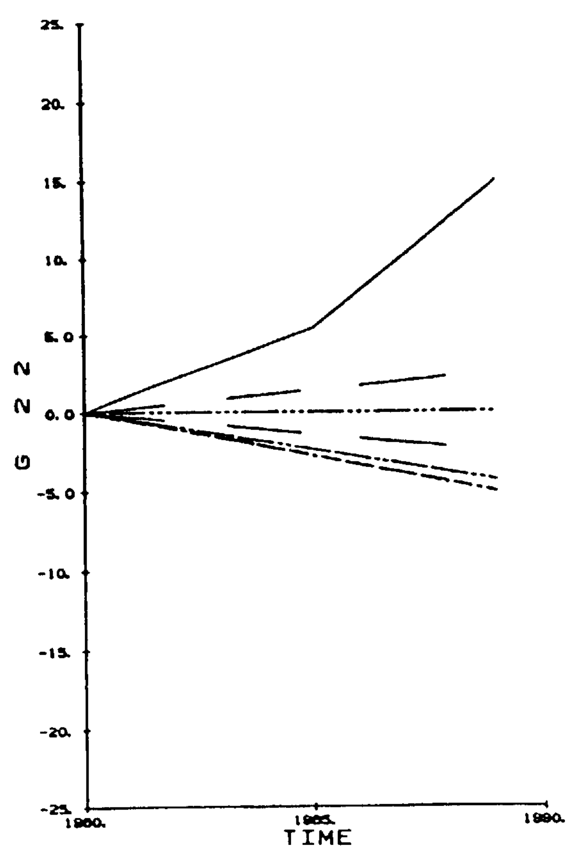
GSFC 5/89 - 5/89-4

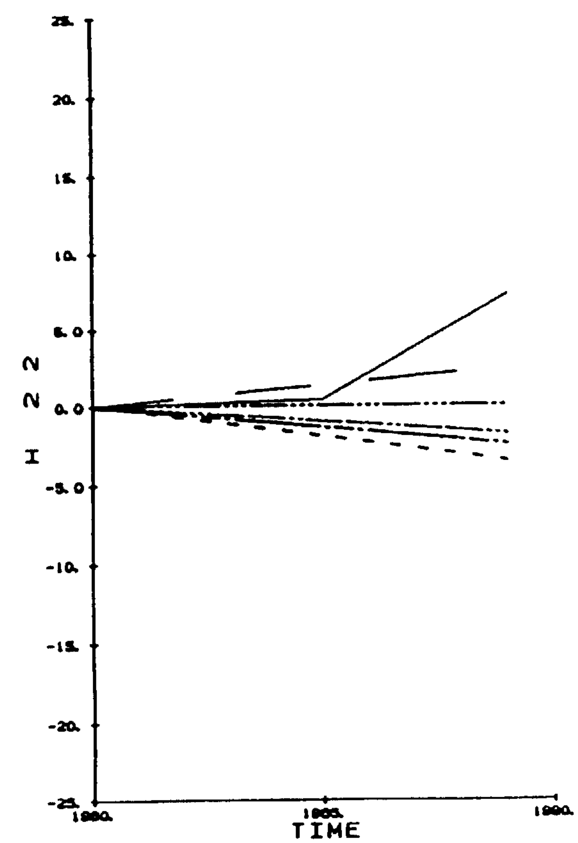




IGRF85 —— 5/89-1 ---- 5/89-2 -.-. 5/89-3 -..- 5/89-4 -...- (SIGMA — —)

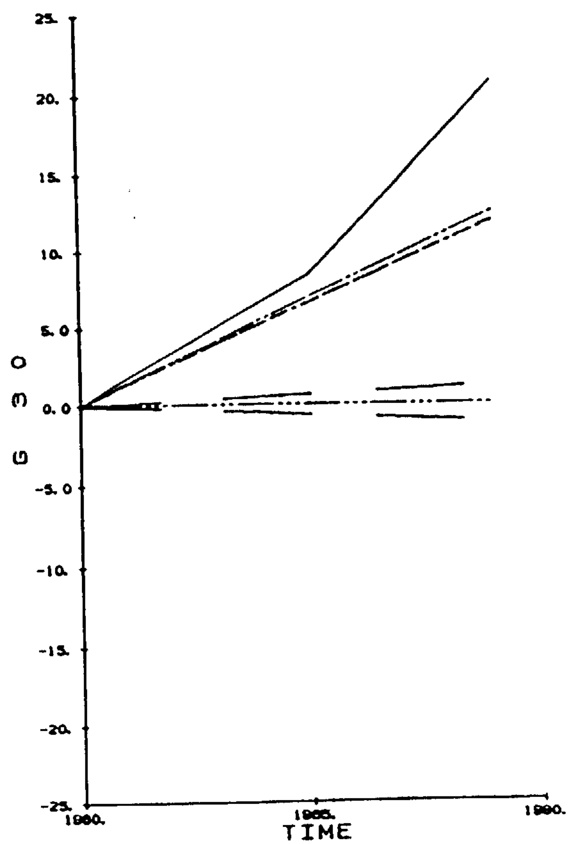
GSFC 5/89 - 5/89-4





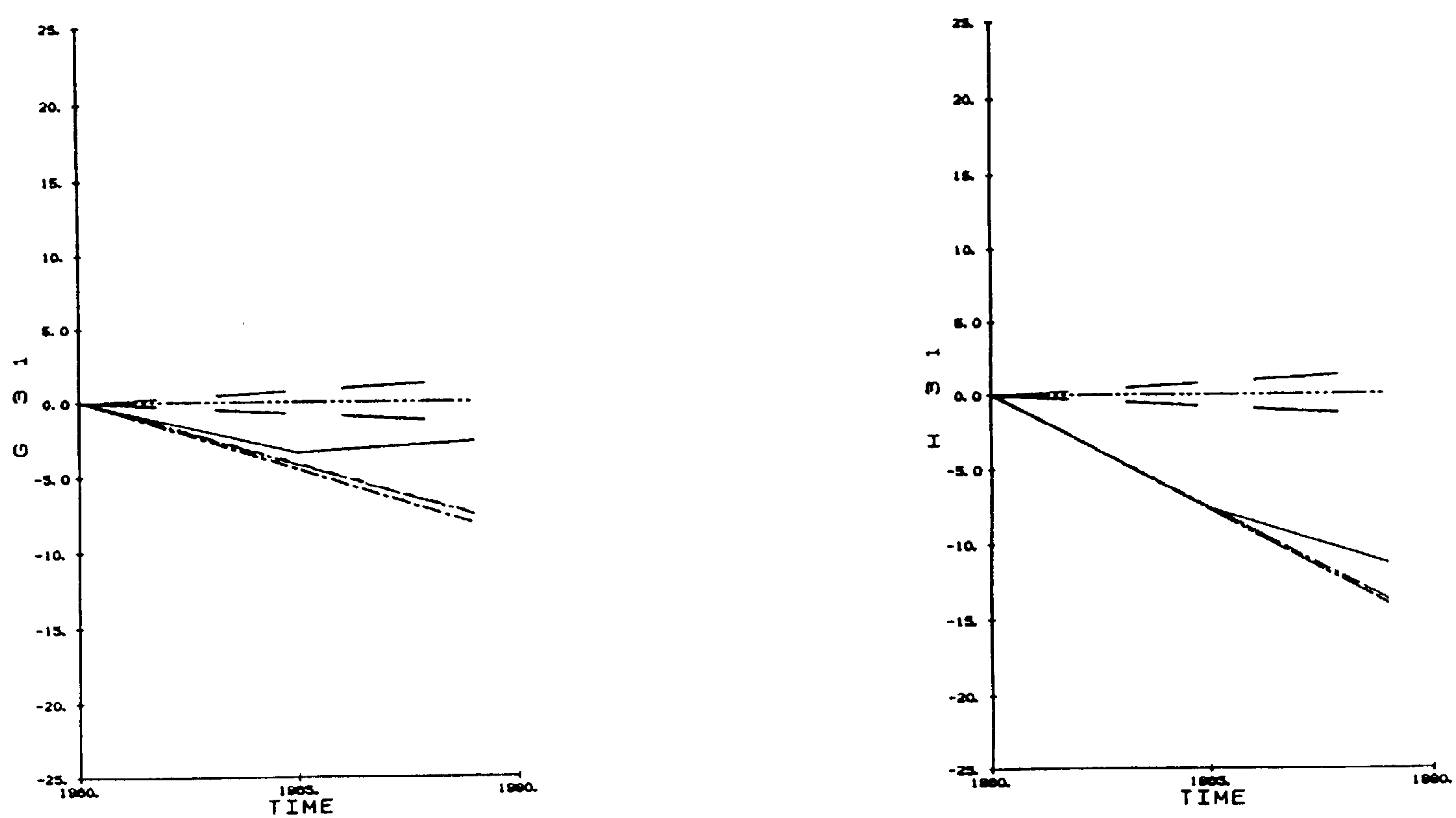
IGRF85 —— 5/89-1 ---- 5/89-2 -·-· 5/89-3 -··- 5/89-4 -···- (SIGMA — —)

GSFC 5/89 - 5/89-4



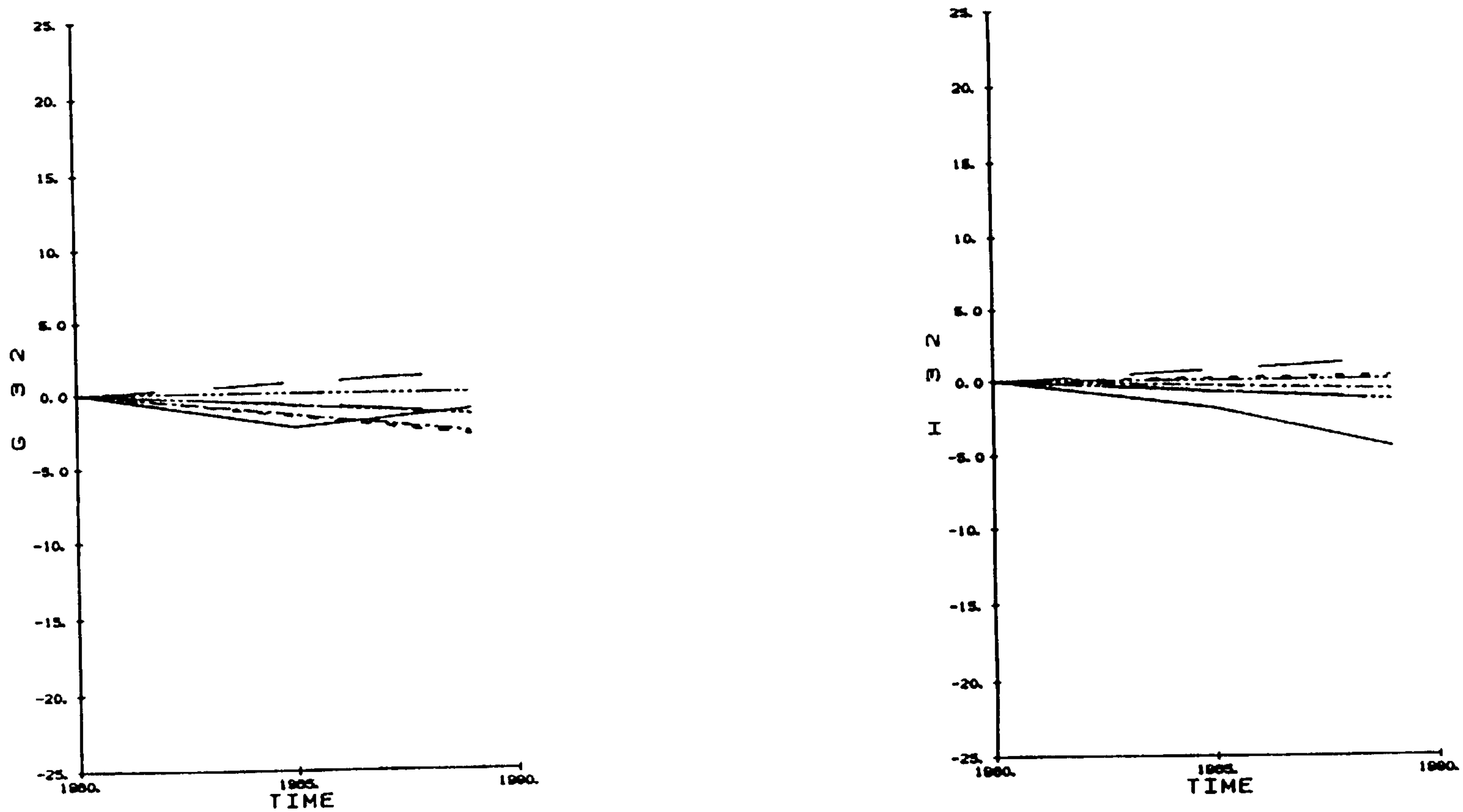
IGRF85 —— 5/89-1 ---- 5/89-2 -.-. 5/89-3 -..- 5/89-4 -...- (SIGMA — —)

GSFC 5/89 - 5/89-4



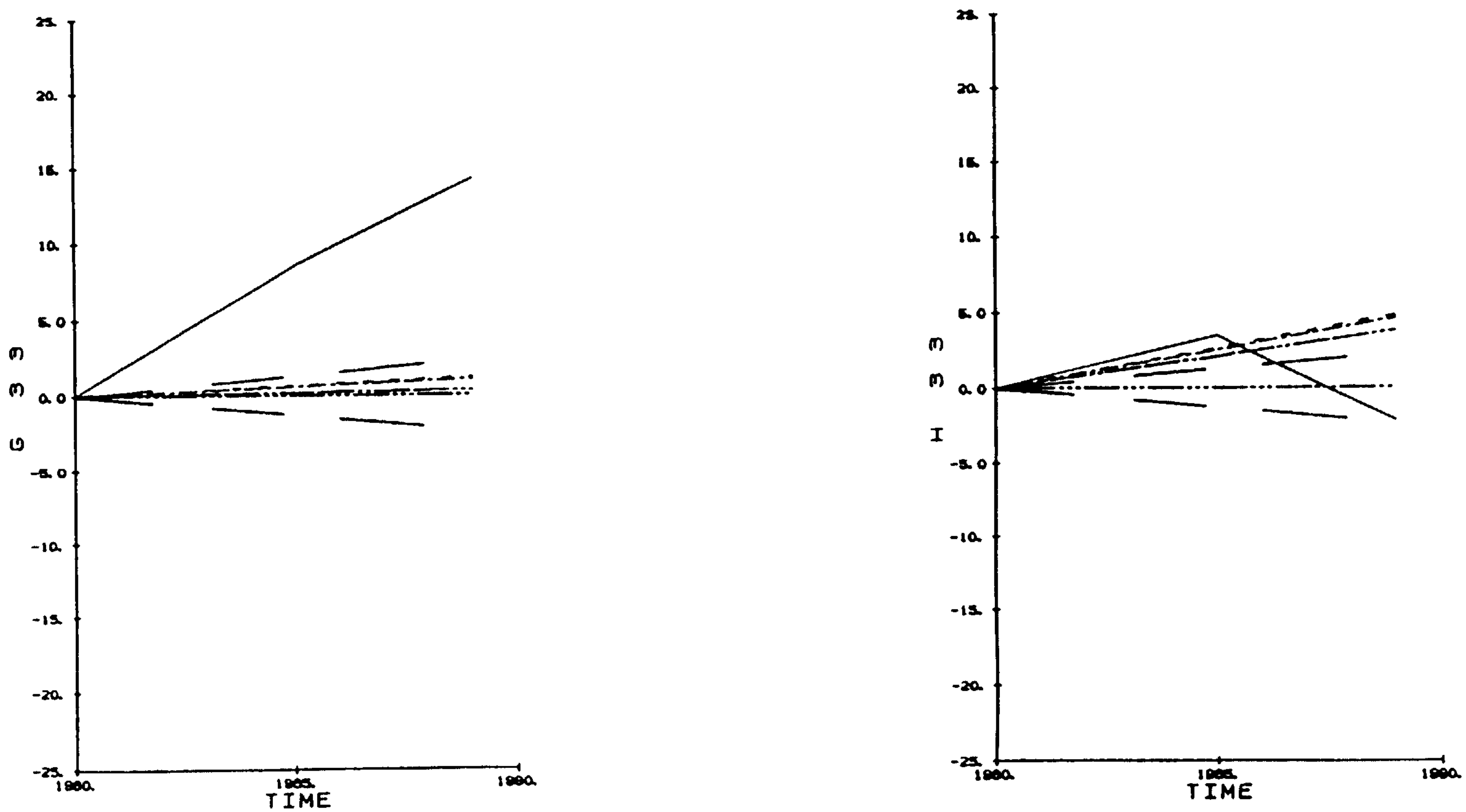
IGRF85 —— 5/89-1 ---- 5/89-2 -·-· 5/89-3 -··- 5/89-4 -···- (SIGMA — —)

GSFC 5/89 - 5/89-4

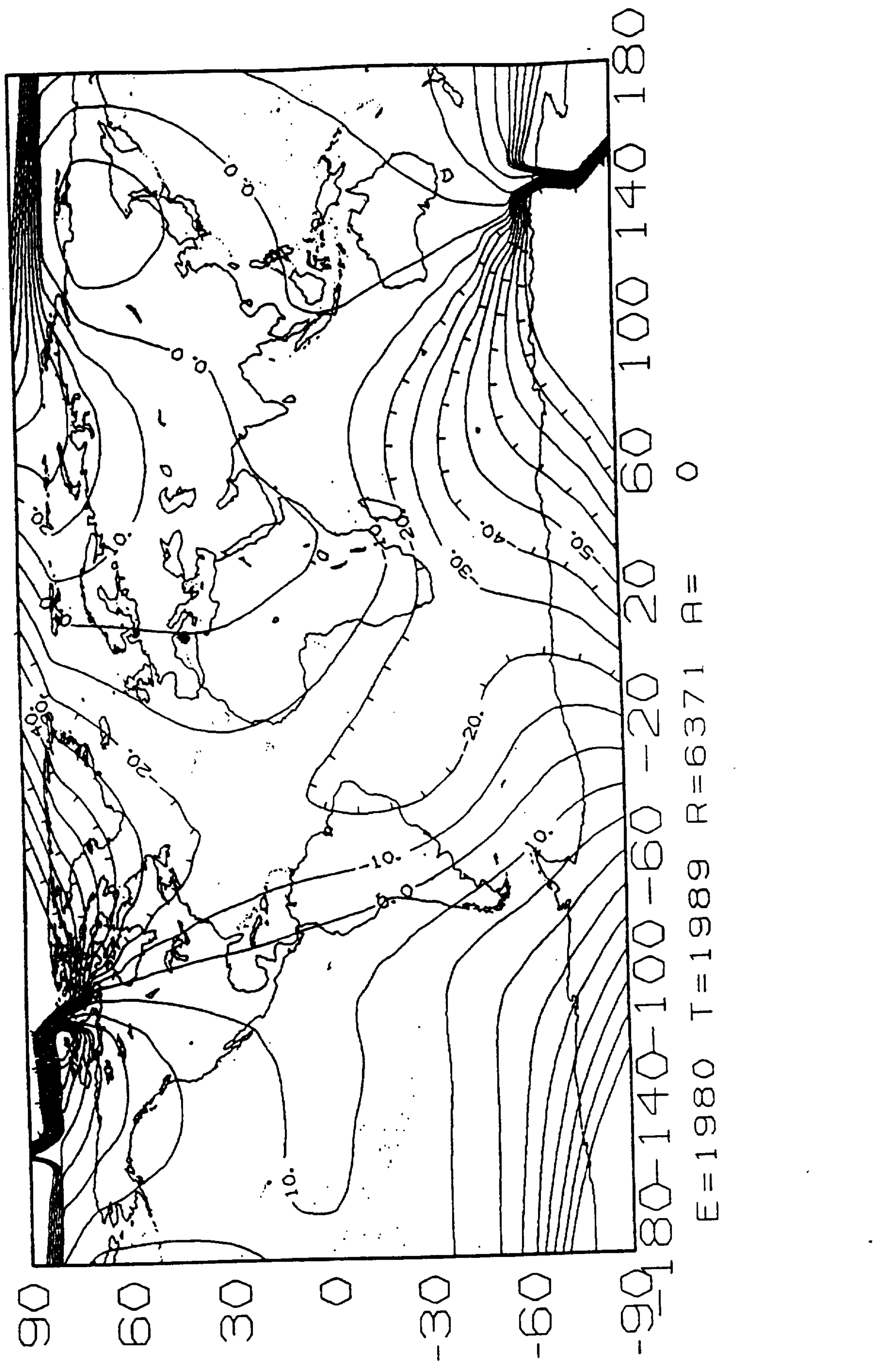


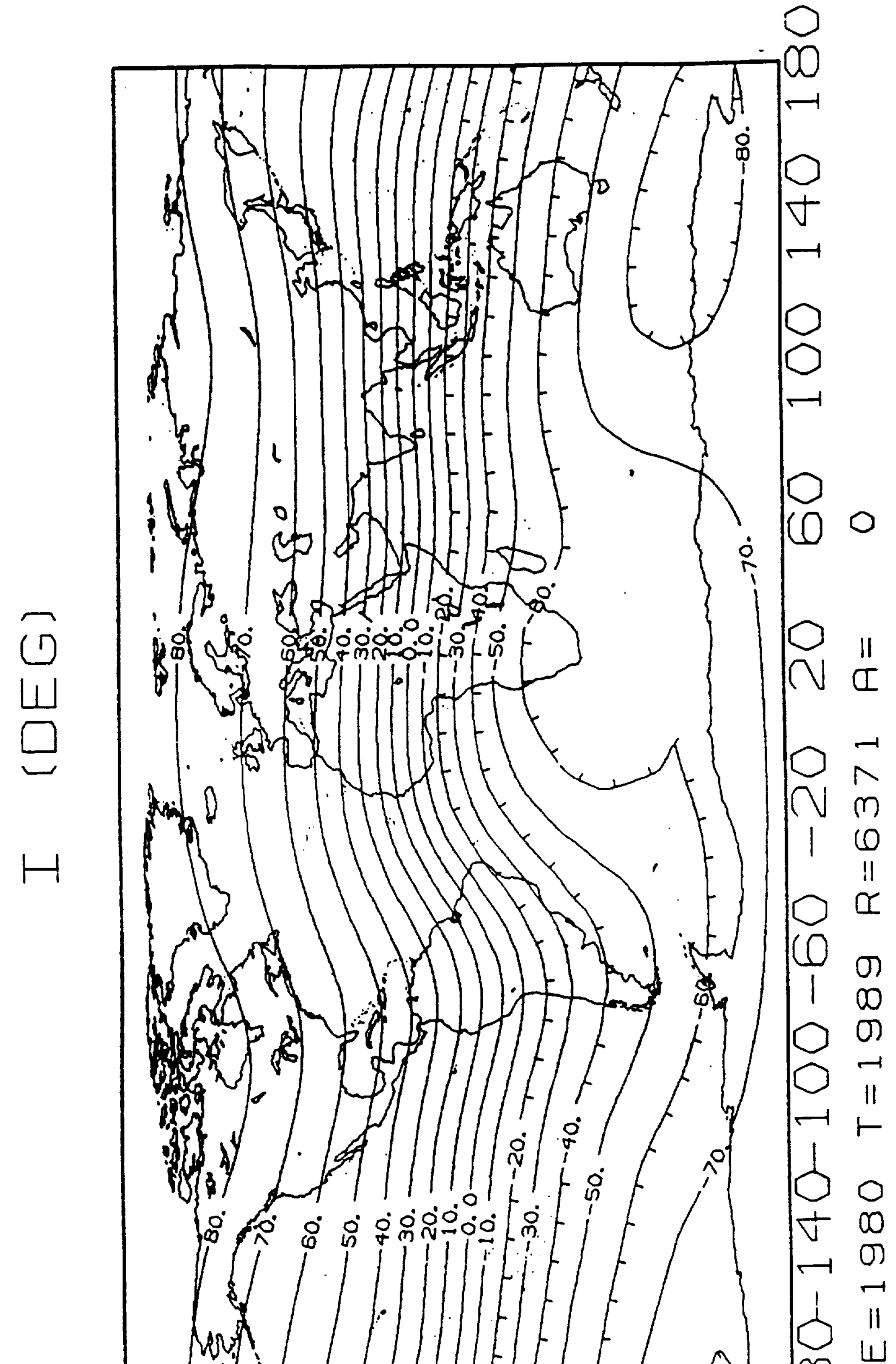
IGRF85 —— 5/89-1 ---- 5/89-2 -·-· 5/89-3 -··- 5/89-4 -···- (SIGMA — —)

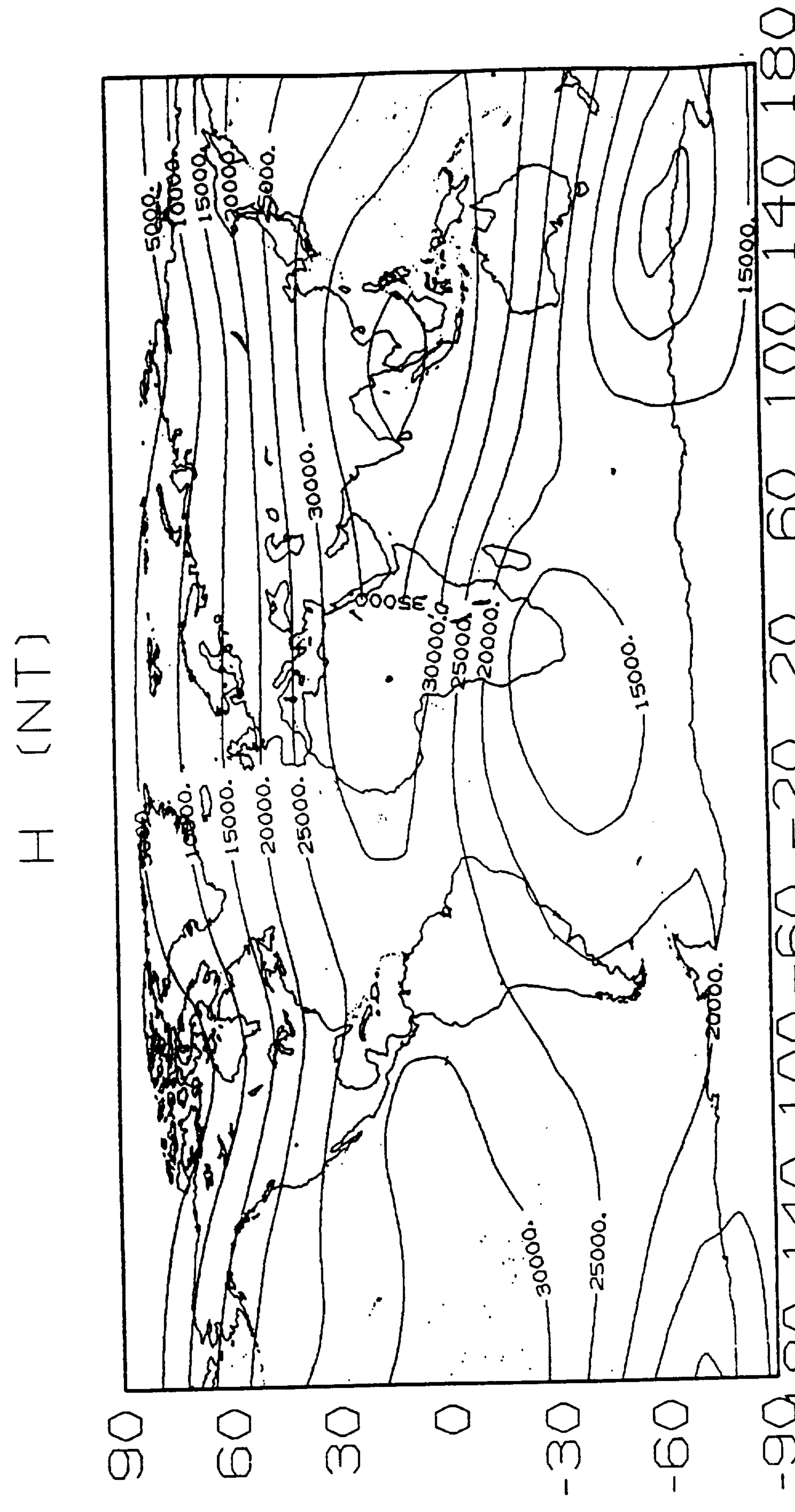
GSFC 5/89 - 5/89-4

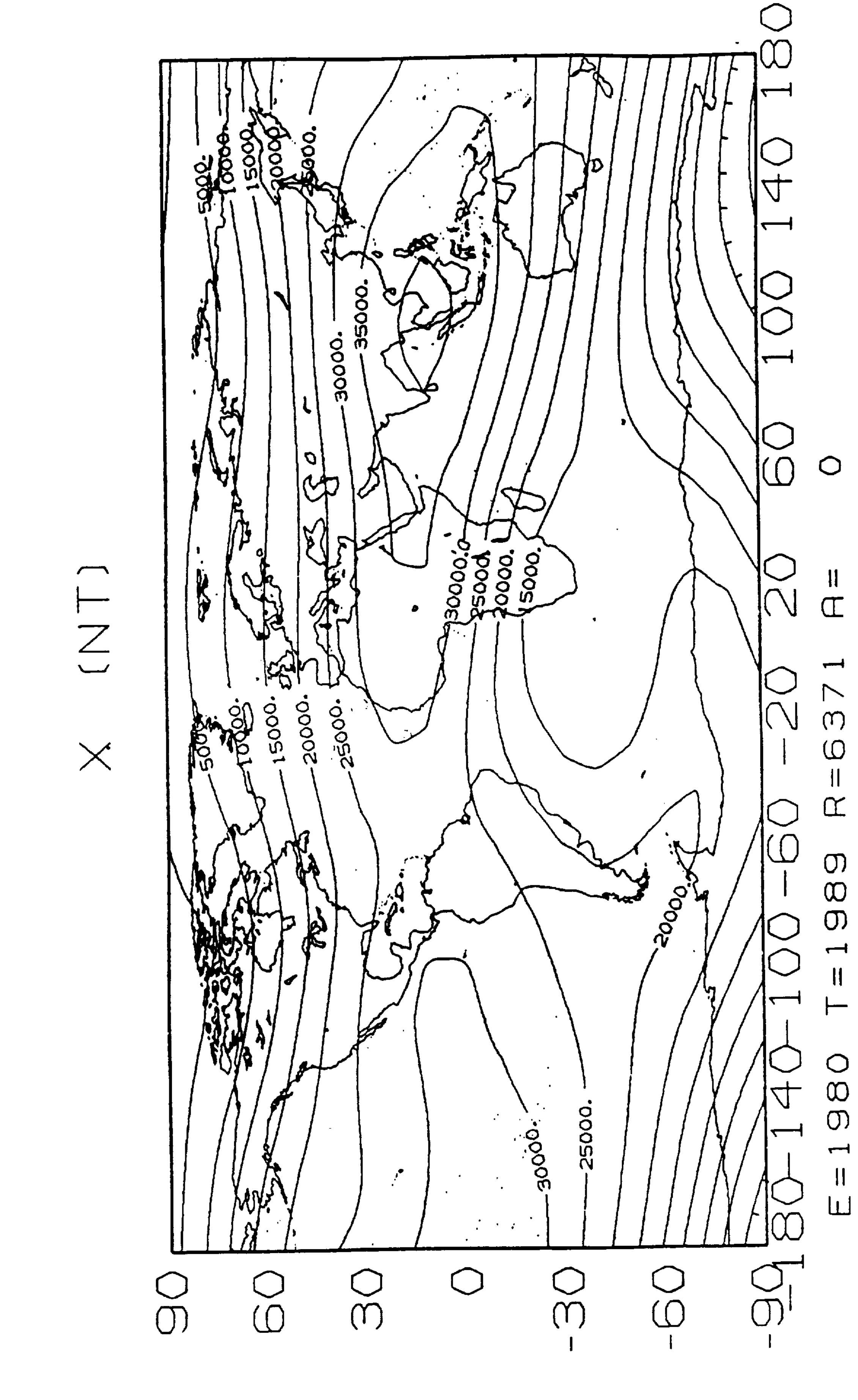


IGRF85 —— 5/89-1 ---- 5/89-2 -·-· 5/89-3 -··· 5/89-4 -···- (SIGMA — —)


D (DEG)
E=1980 T=1989 R=6371 A= 0
90
60
30
0
-30
-60
-90
-180
-140
-100
-60
-20
20
60
100
140
180


I (DEG)
E=1980 T=1989 R=6371 A= 0


H (NT)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90
60
30
0
-30
-60
-90
5000.
10000.
15000.
20000.
25000.
30000.
35000.


X (NT)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
-90 -60 -30 0 30 60 90
5000.
10000.
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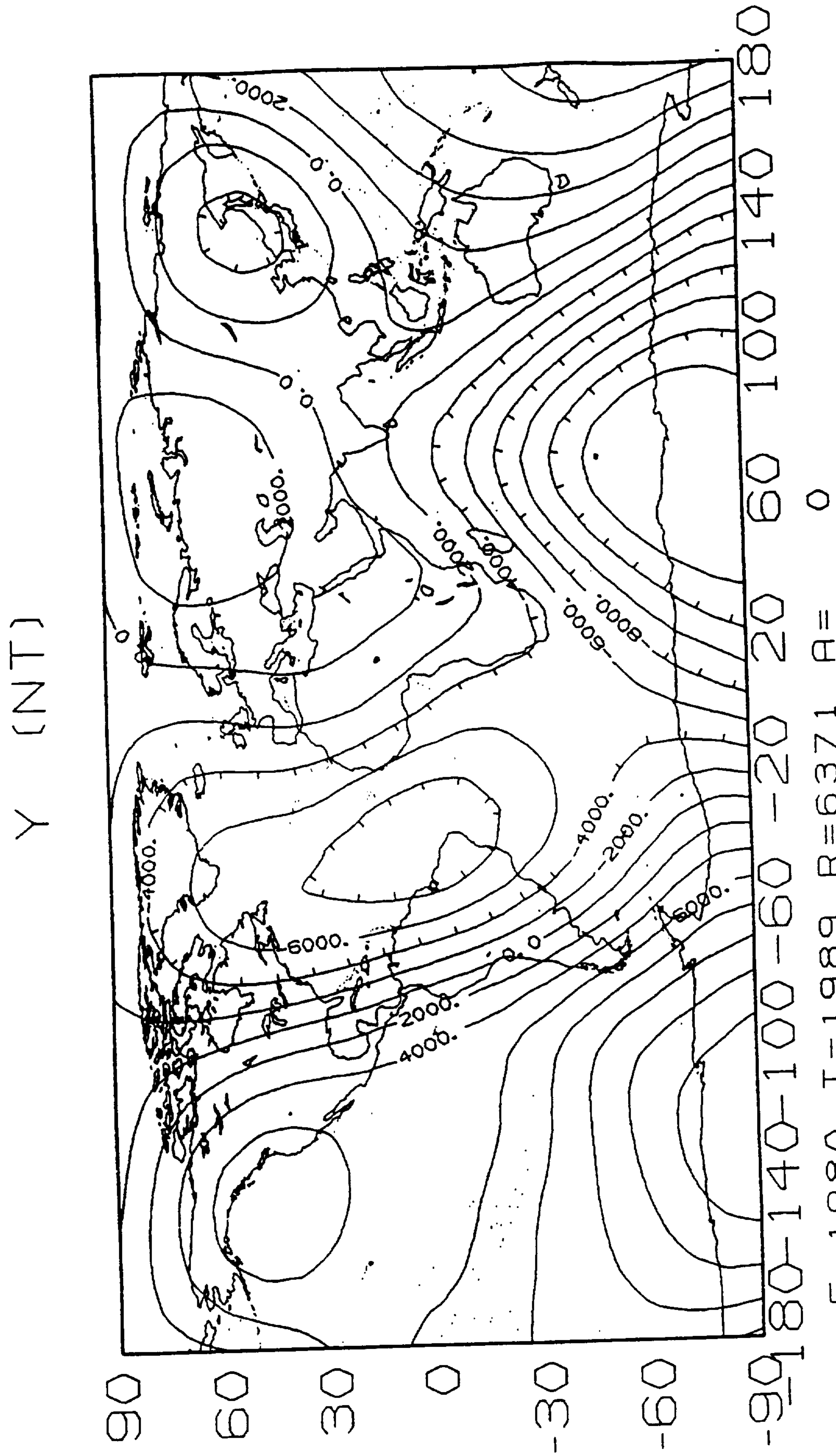
30000.
25000.
20000.


Y (NT)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90
-4000.
-6000.
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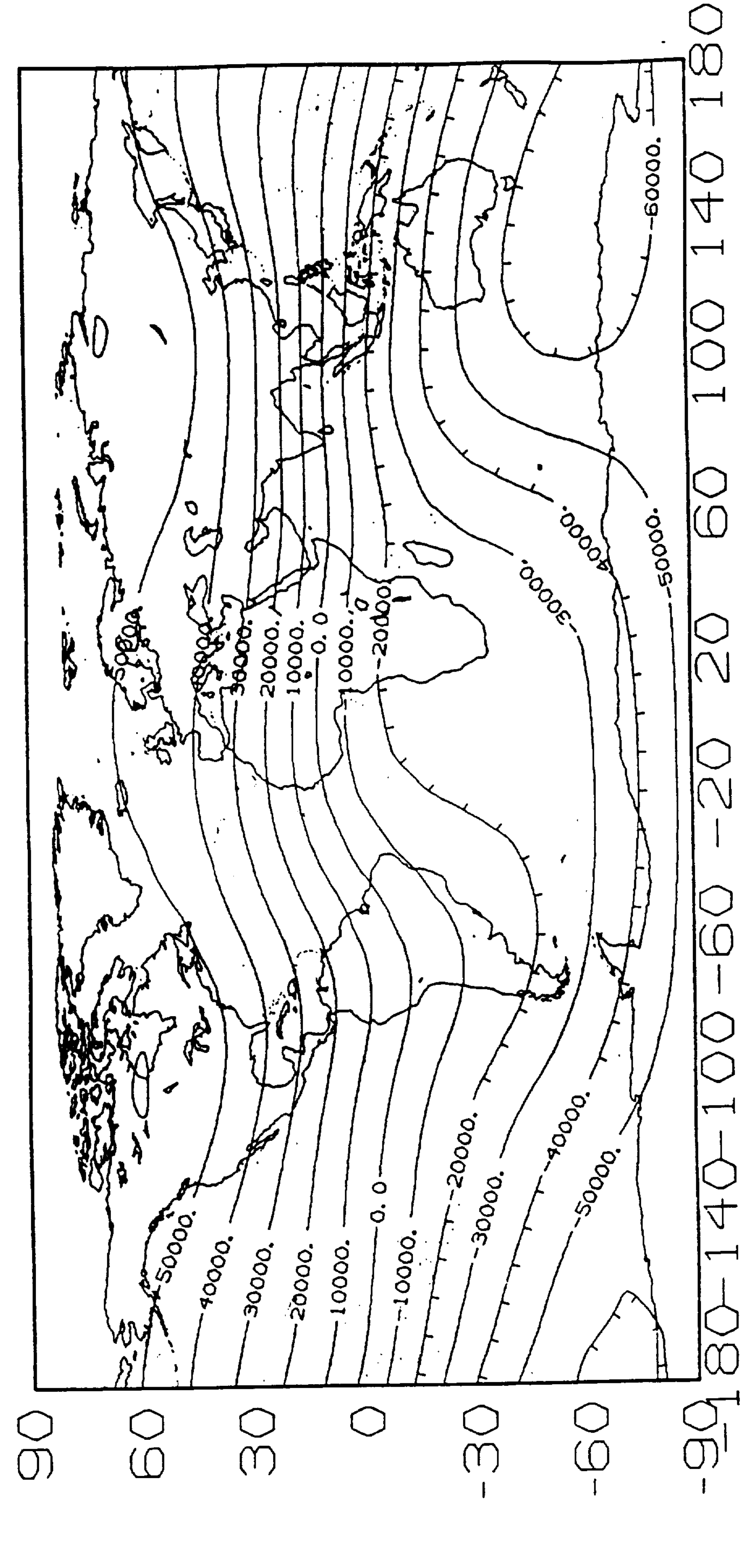
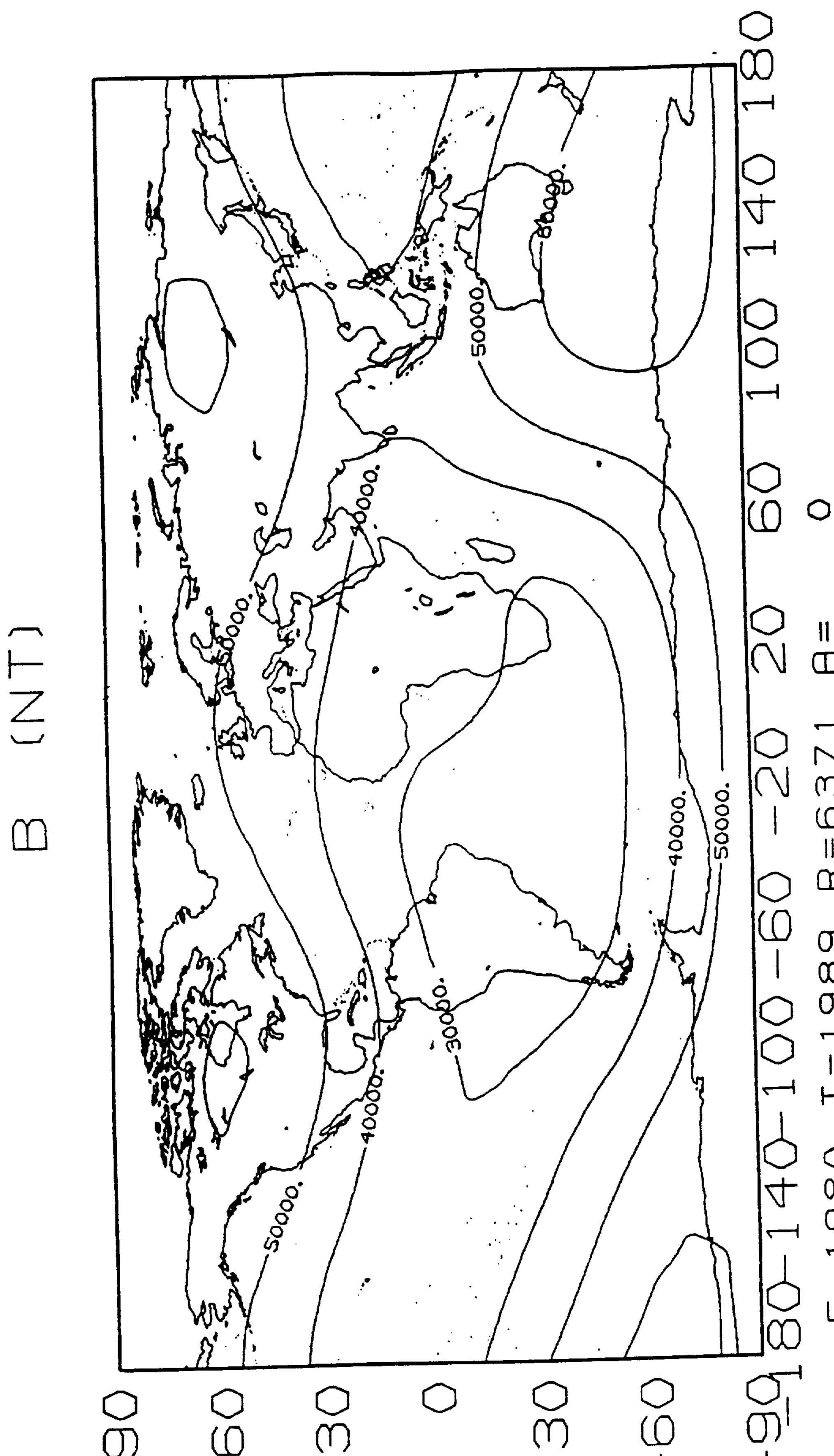
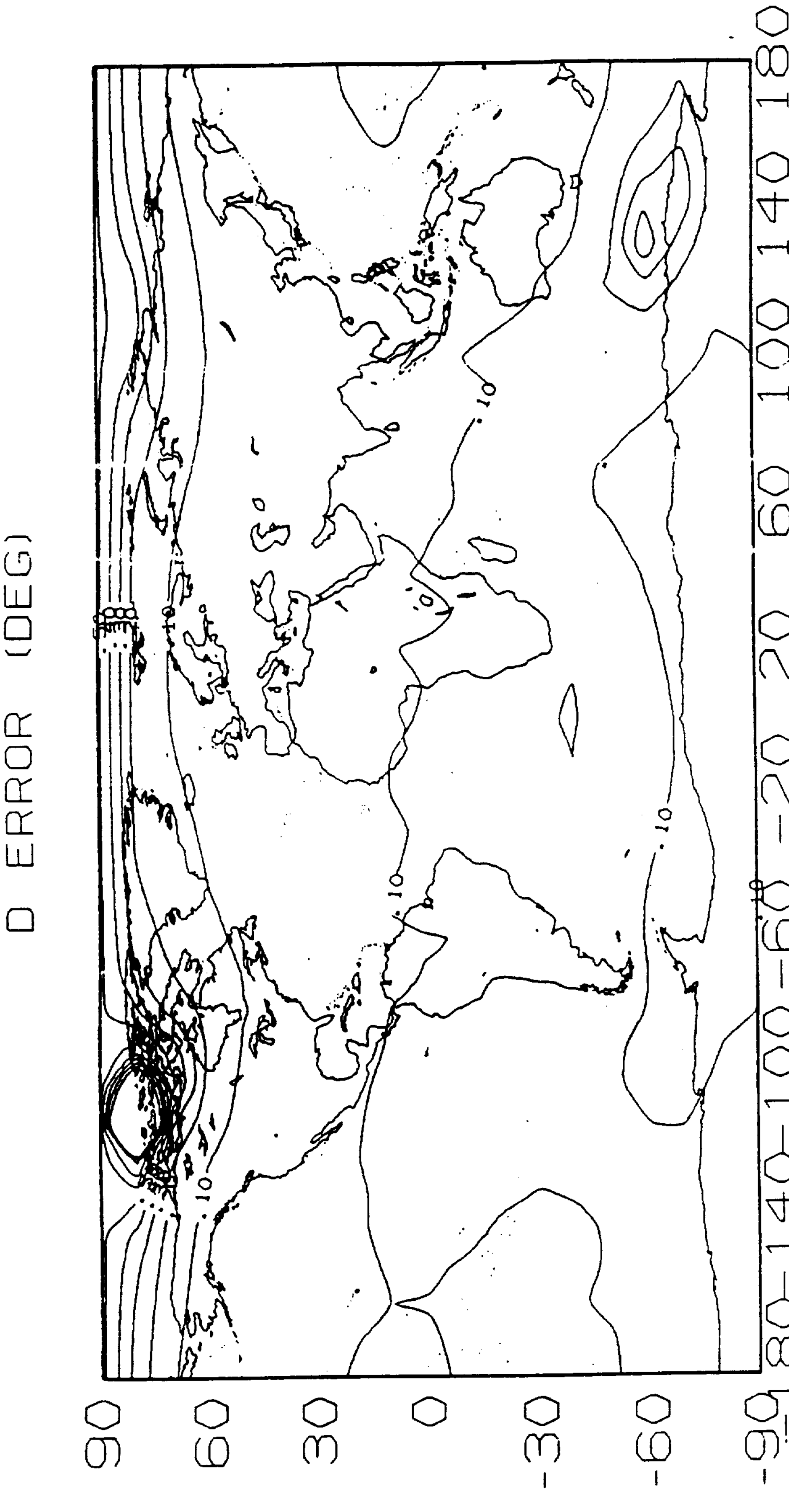
-8000.
6000.
8000.



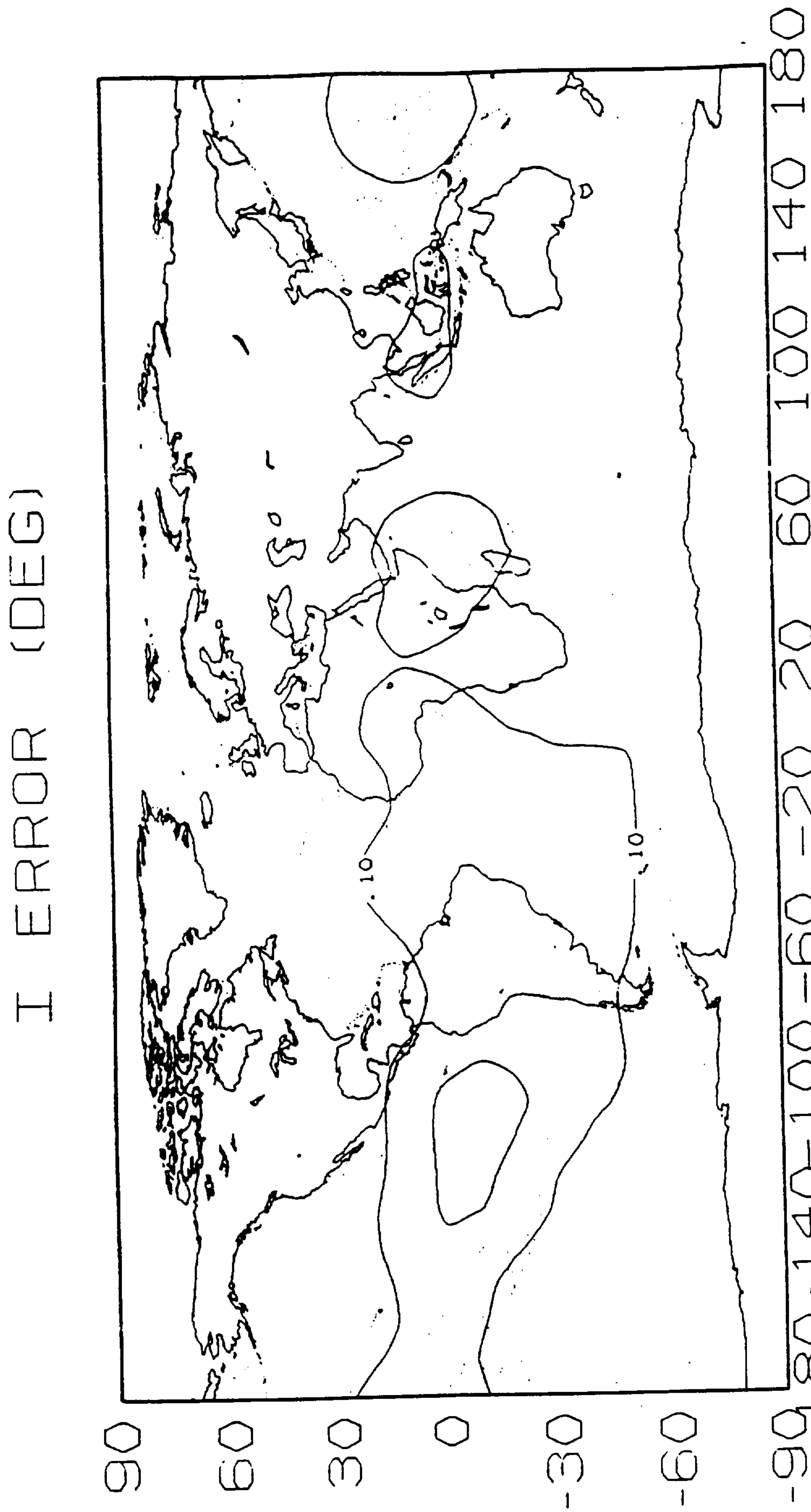
Z (NT)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90
50000.
40000.
30000.
20000.
10000.
0.0
-10000.
-20000.
-30000.
-40000.
-50000.
-60000.



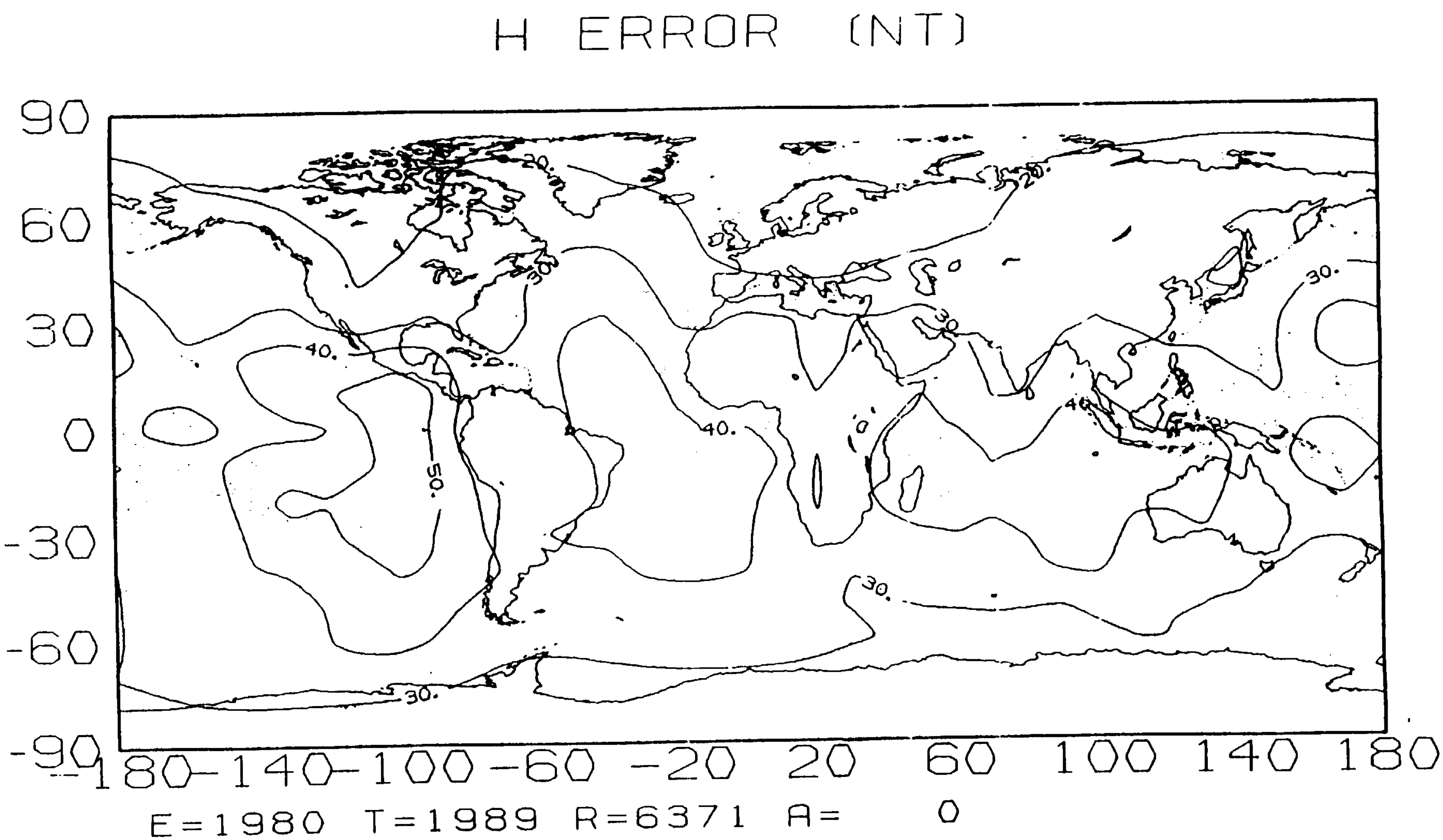
B (NT)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
-90 -60 -30 0 30 60 90
30000.
40000.
50000.
60000.

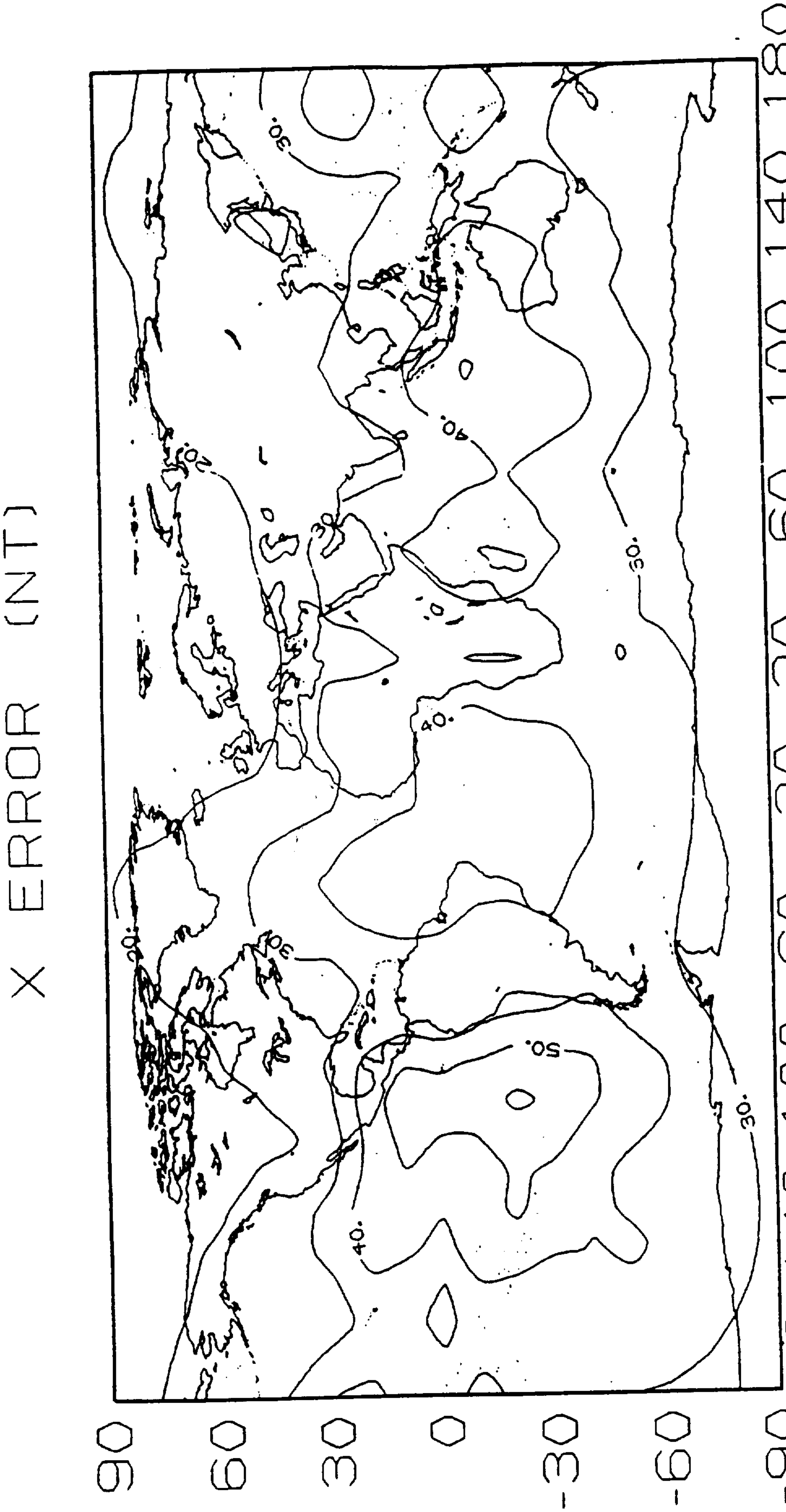


D ERROR (DEG)
E=1980 T=1989 R=6371 A= 0
90
60
30
0
-30
-60
-90
-180
-140
-100
-60
-20
20
60
100
140
180
.10



I ERROR (DEG)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90
.10
.10


H ERROR (NT)
90
60
30
0
-30
-60
-90
-180 -140 -100 -60 -20 20 60 100 140 180
20.
30.
40.
50.
E=1980 T=1989 R=6371 A= 0


X ERROR (NT)
E=1980 T=1989 R=6371 A= 0
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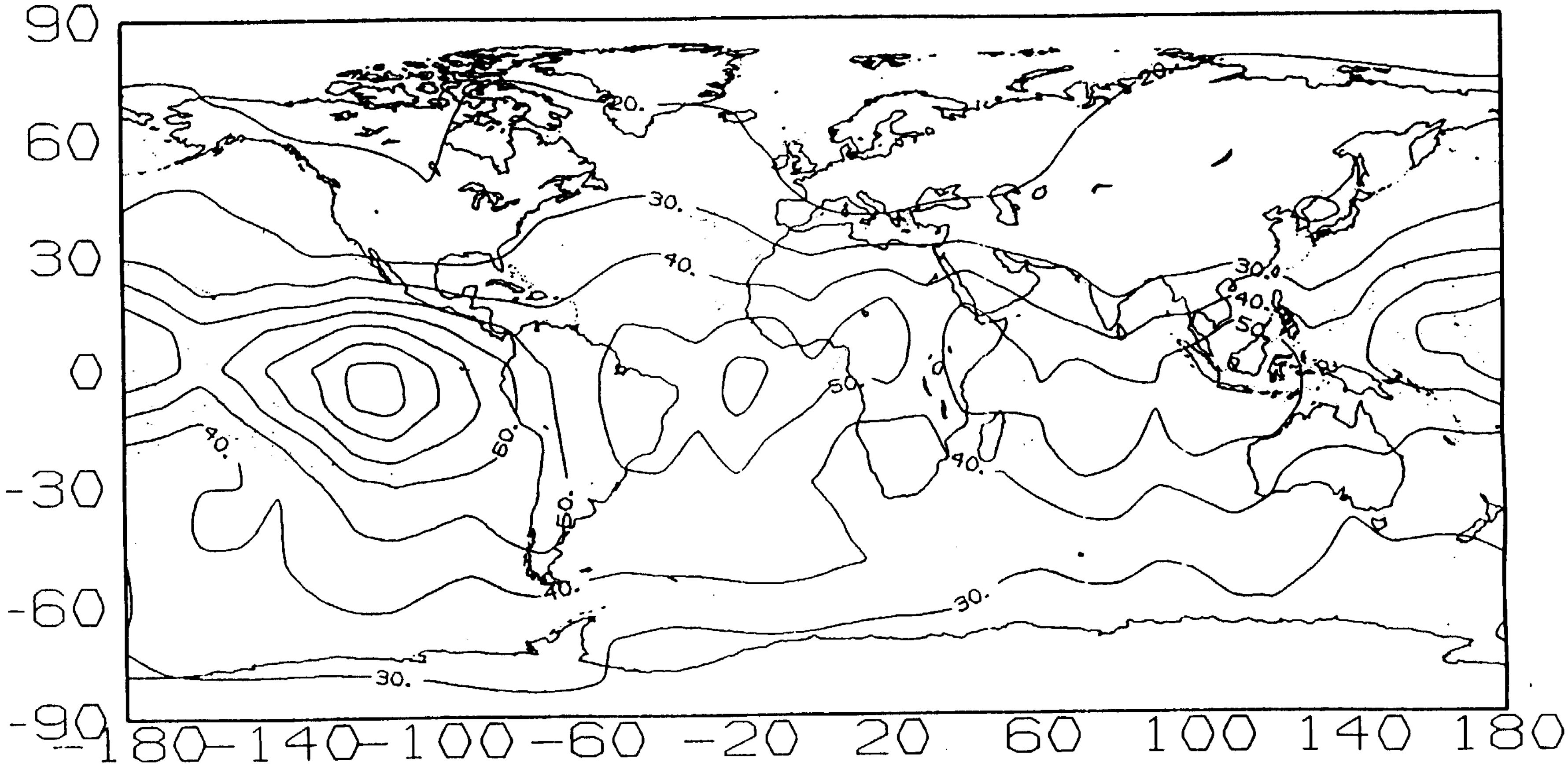
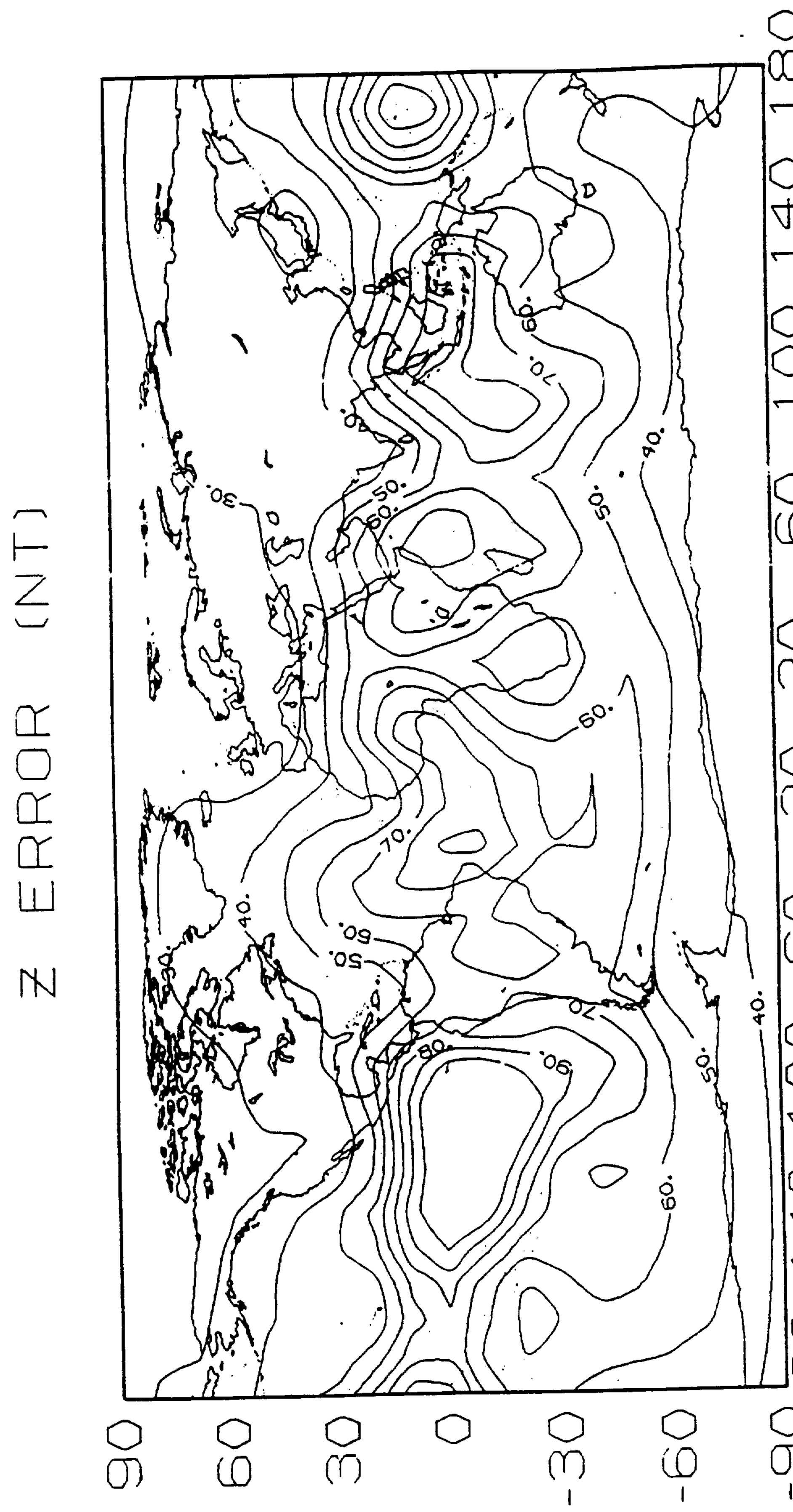
90 60 30 0 -30 -60 -90
30.
20.
40.
50.

Y ERROR (NT)



E=1980 T=1989 R=6371 A= 0


Z ERROR (NT)
E=1980 T=1989 R=6371 A= 0
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90 60 30 0 -30 -60 -90
30.
40.
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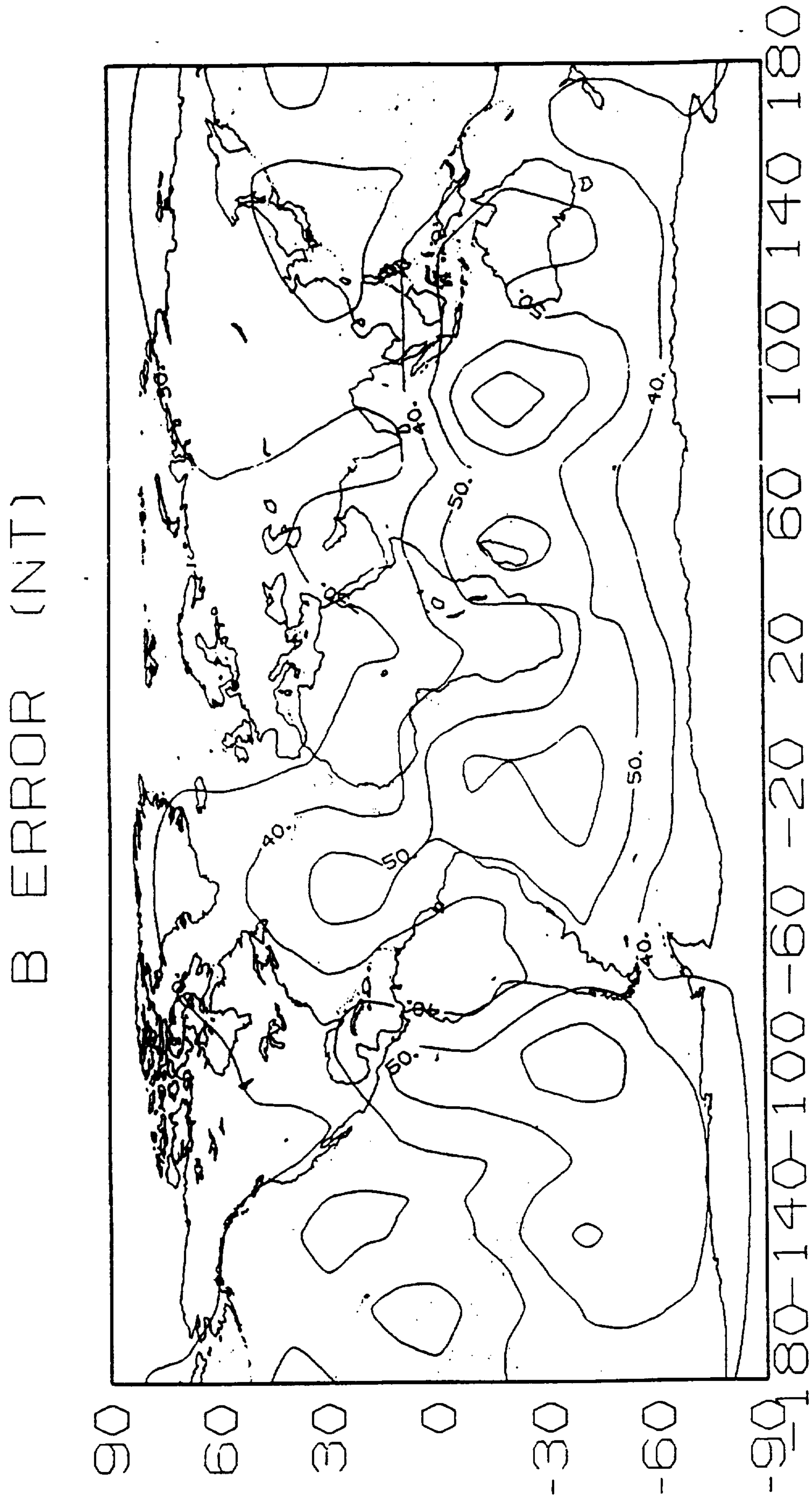
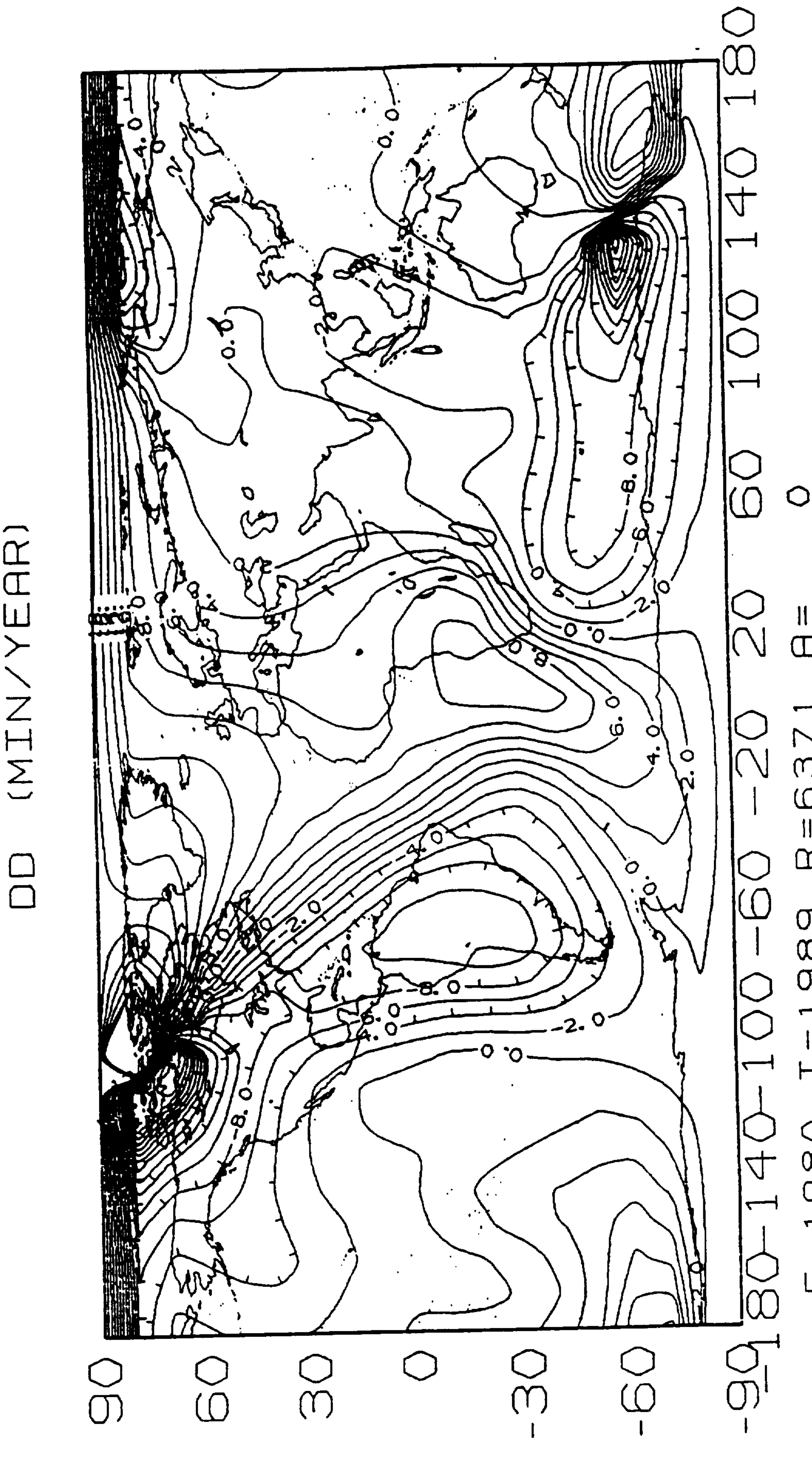
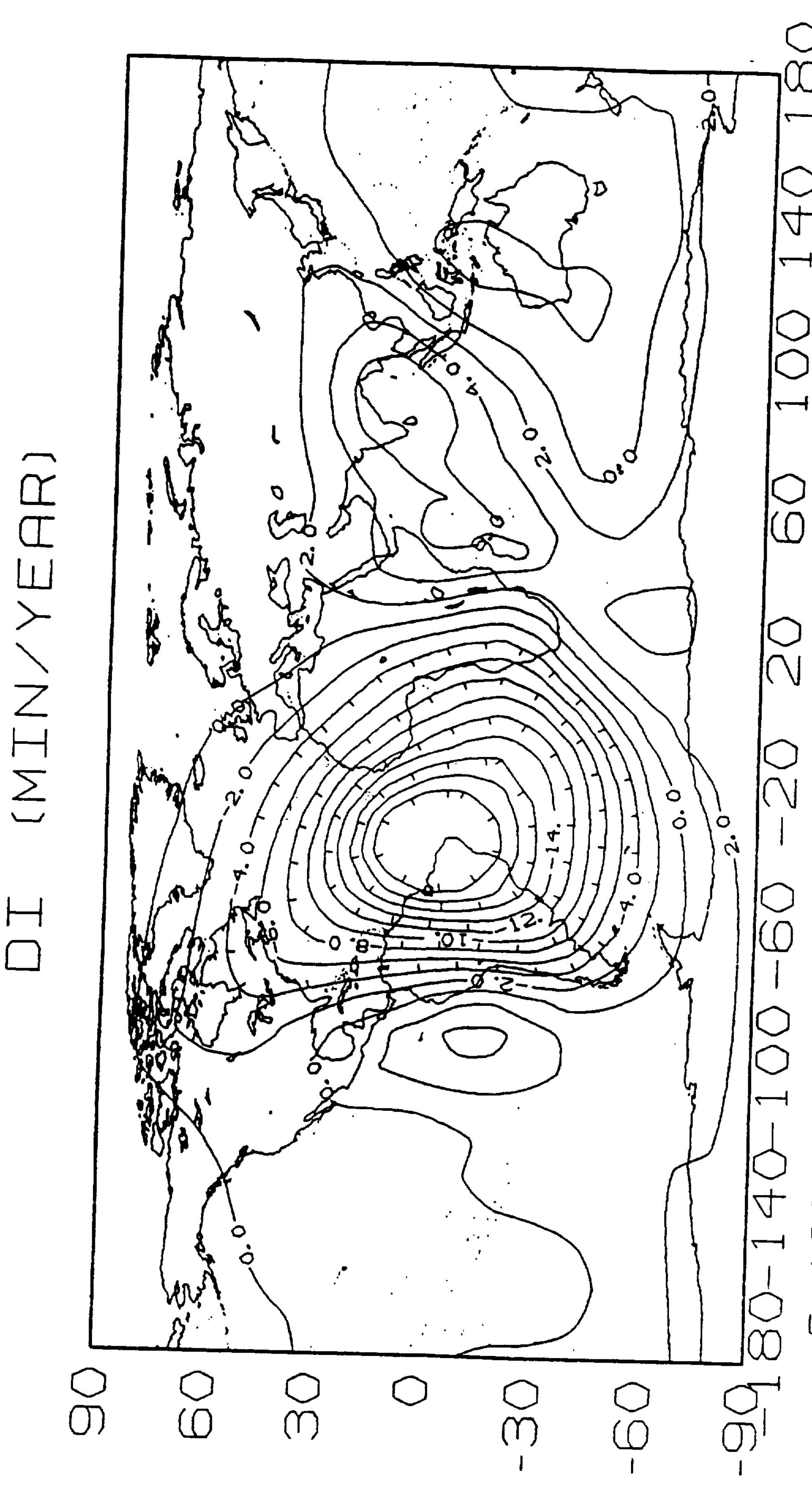
60.
70.
80.
90.


B ERROR (NT)
E=1980 T=1989 R=6371 A= 0
90
60
30
0
-30
-60
-90
-180
-140
-100
-60
-20
20
60
100
140
180
40.
50.


DD (MIN/YEAR)
E=1980 T=1989 R=6371 A= 0
90
60
30
0
-30
-60
-90
-180 -140 -100 -60 -20 20 60 100 140 180


DI (MIN/YEAR)
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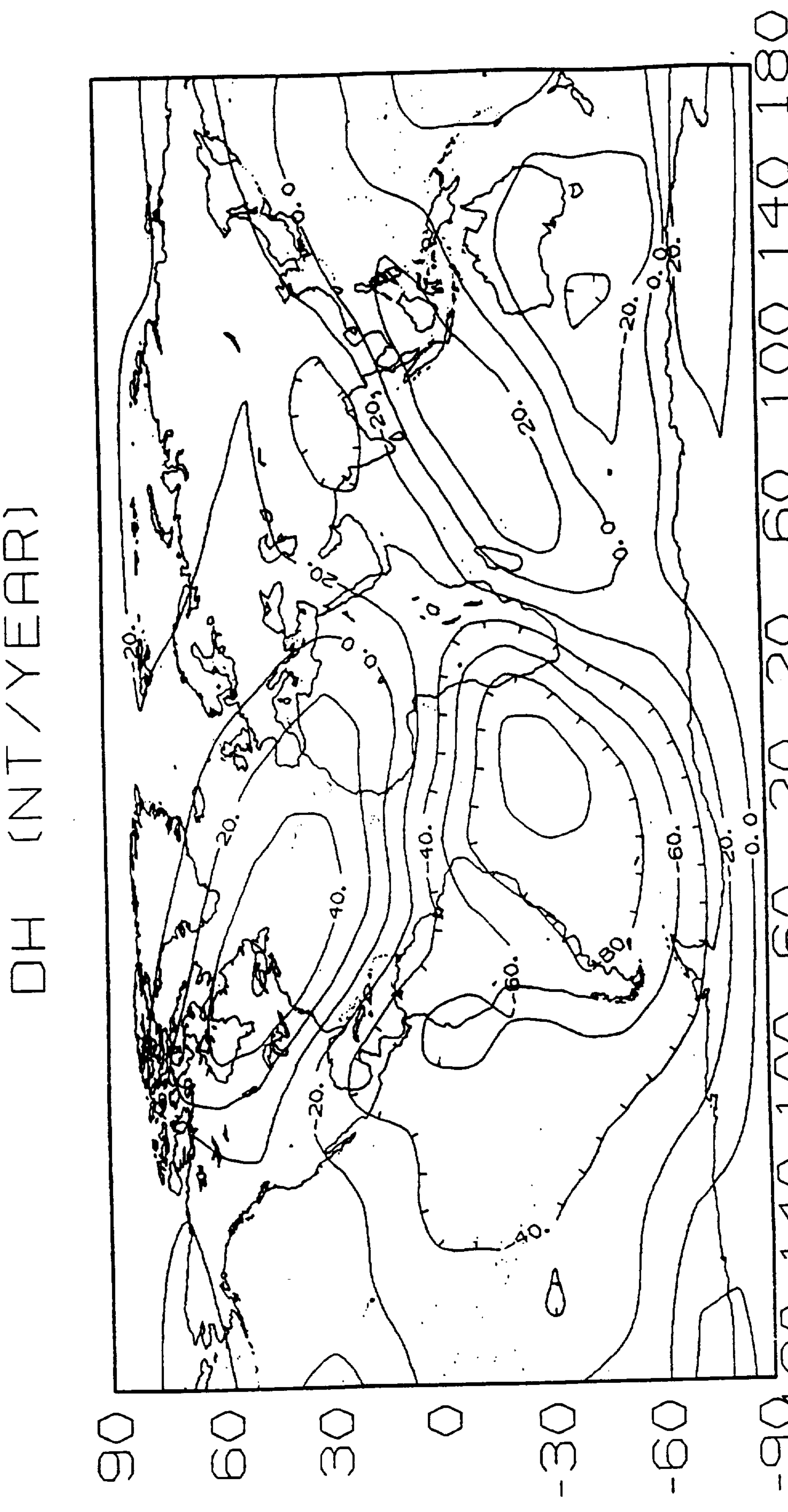
90 60 30 0 -30 -60 -90


DH (NT/YEAR)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90
0.0
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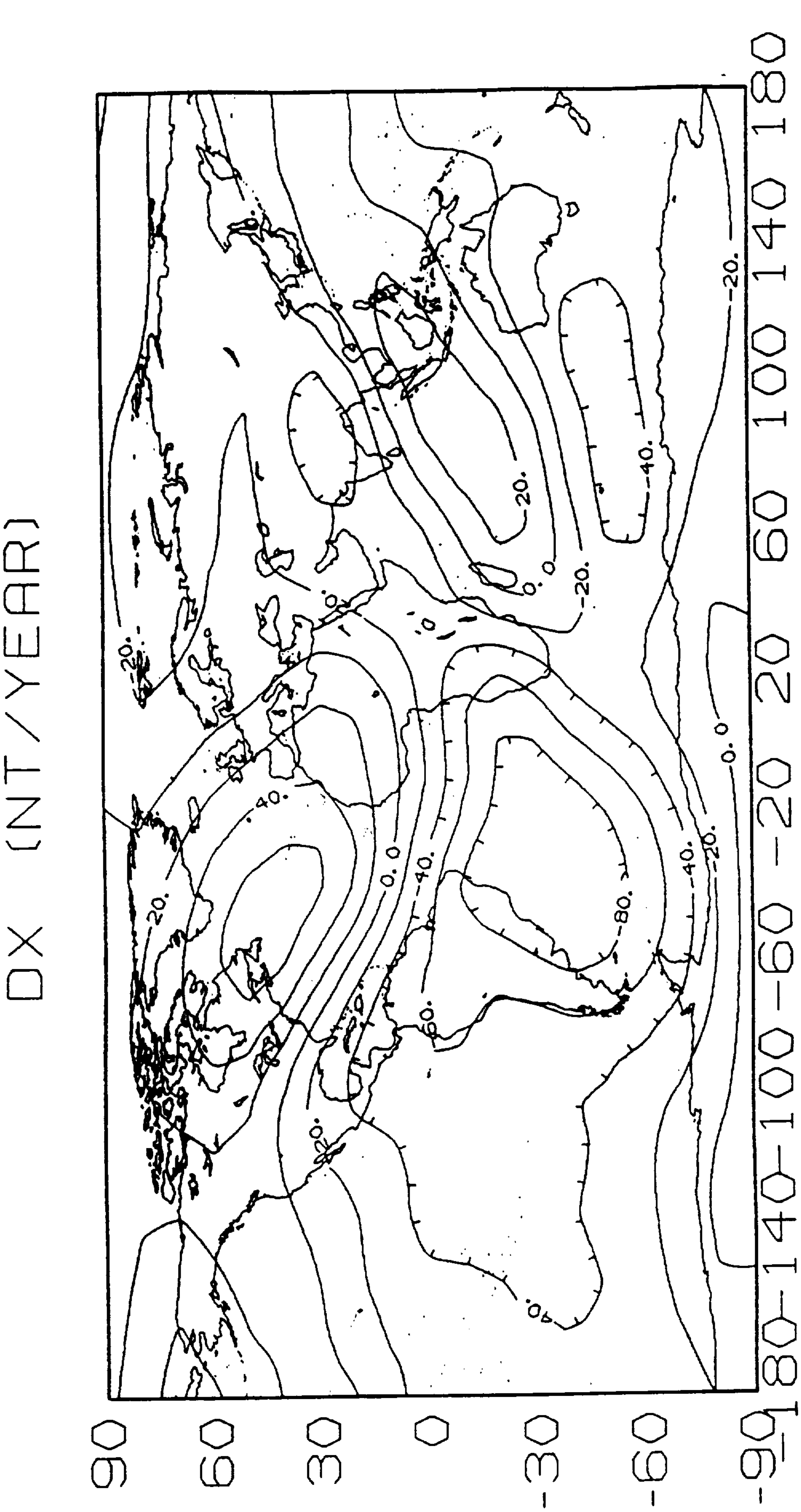
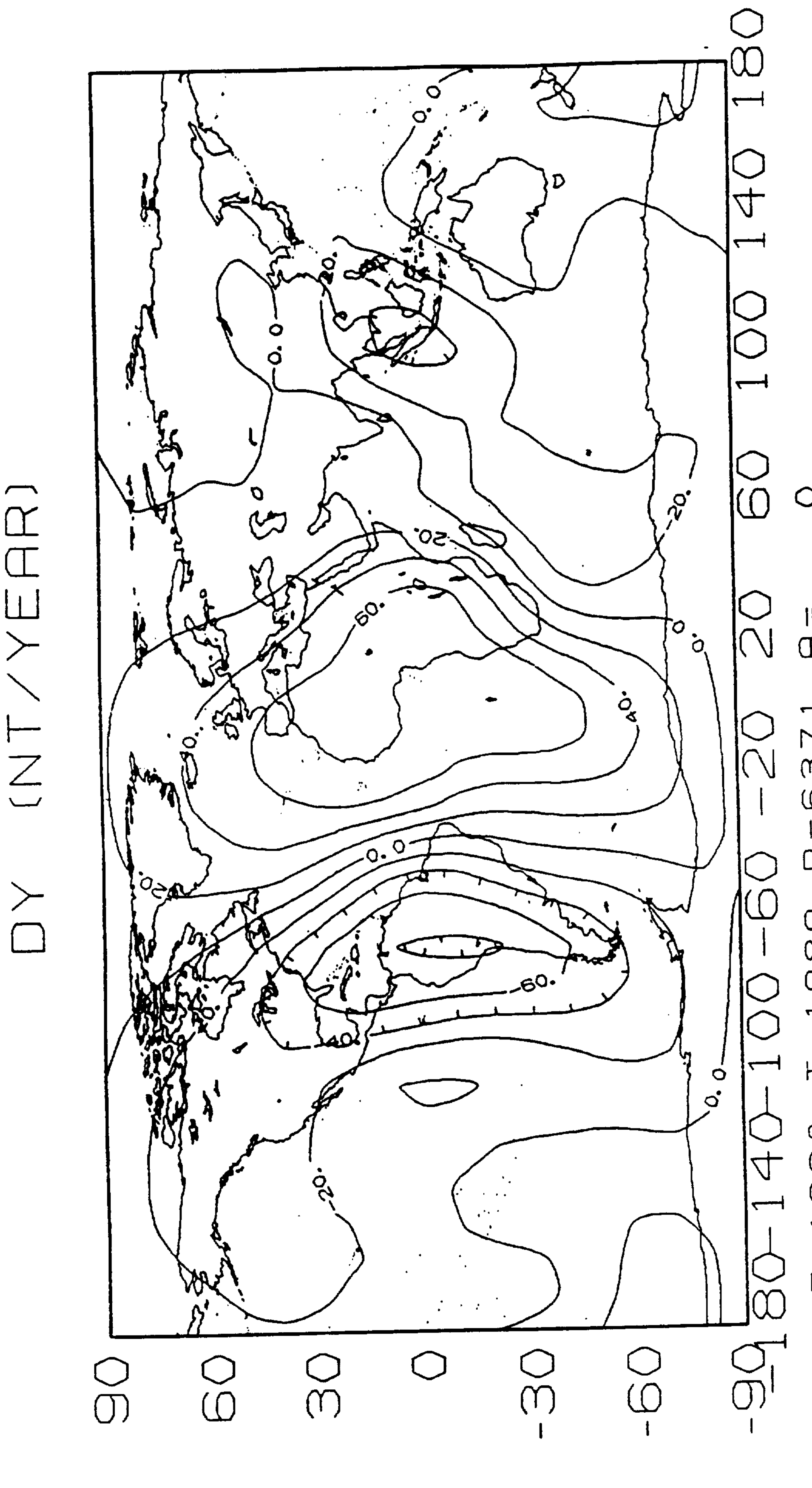
60.
-60.
-80.


DX (NT/YEAR)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90


DY (NT/YEAR)
E=1980 T=1989 R=6371 A= 0
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90 60 30 0 -30 -60 -90
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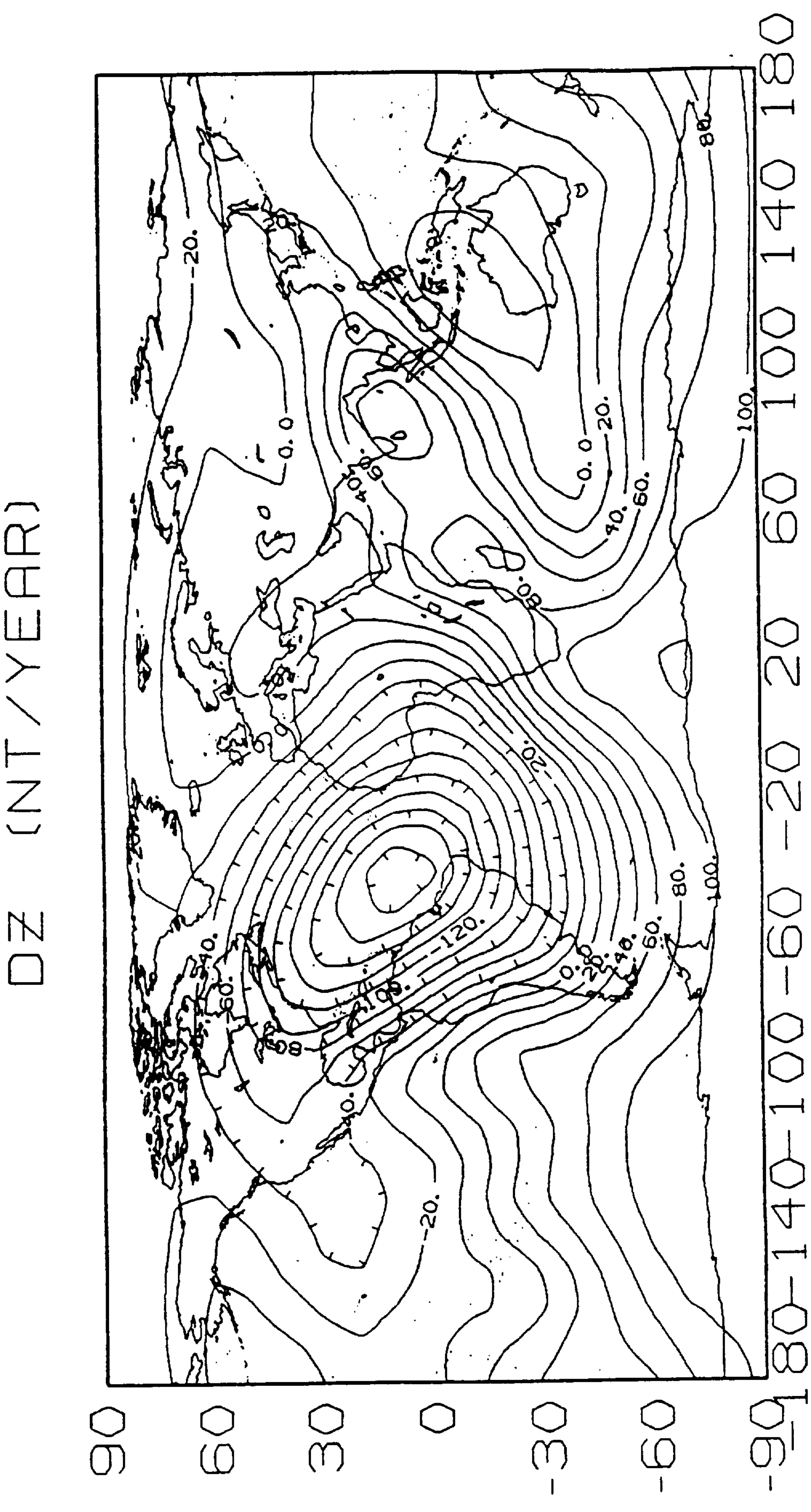
-20.
40.
60.
-60.
-40.


DZ (NT/YEAR)
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90 60 30 0 -30 -60 -90
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40.
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0.0
-20.
-40.
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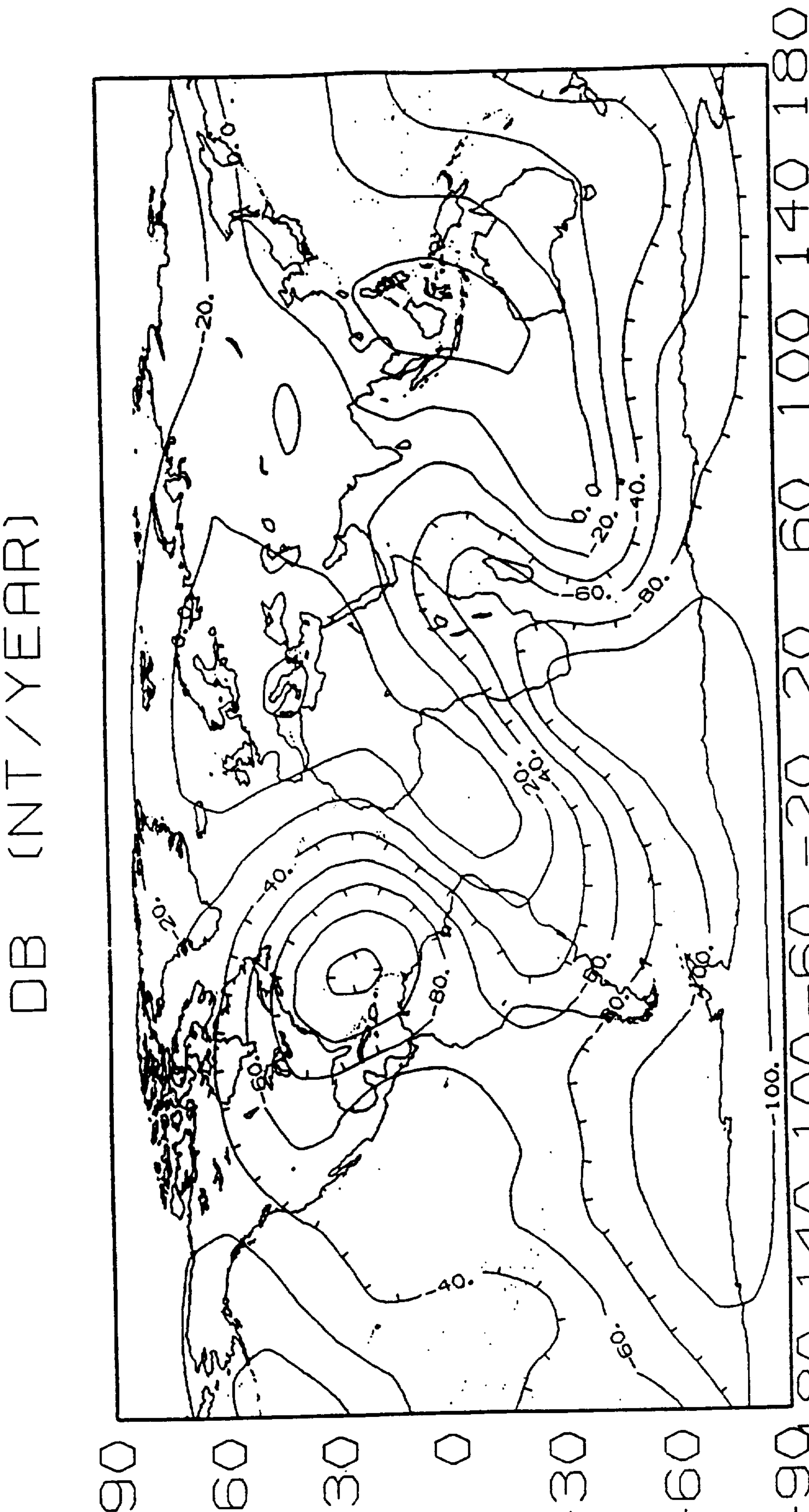
-80.
-100.


DB (NT/YEAR)
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90 60 30 0 -30 -60 -90
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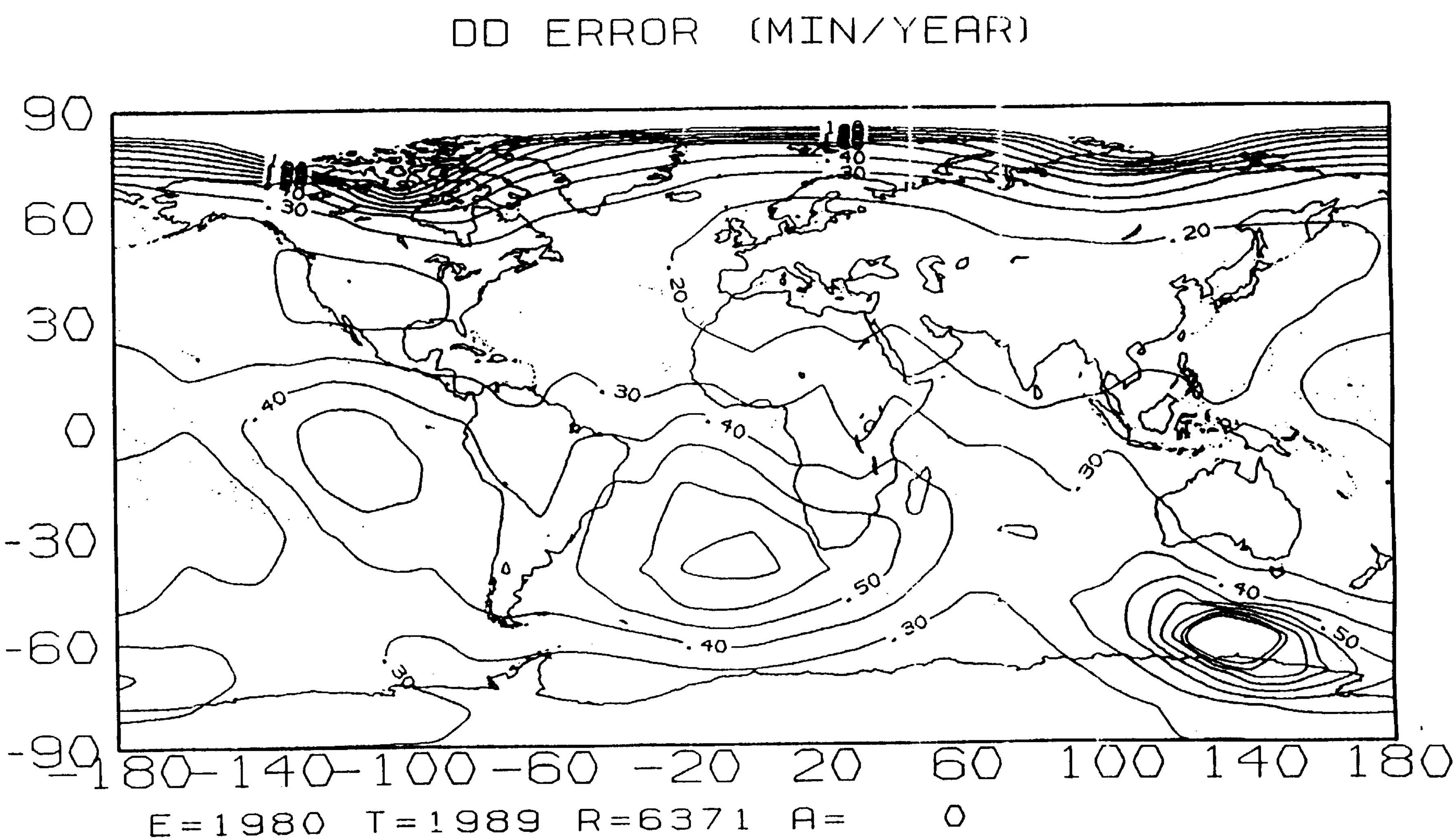
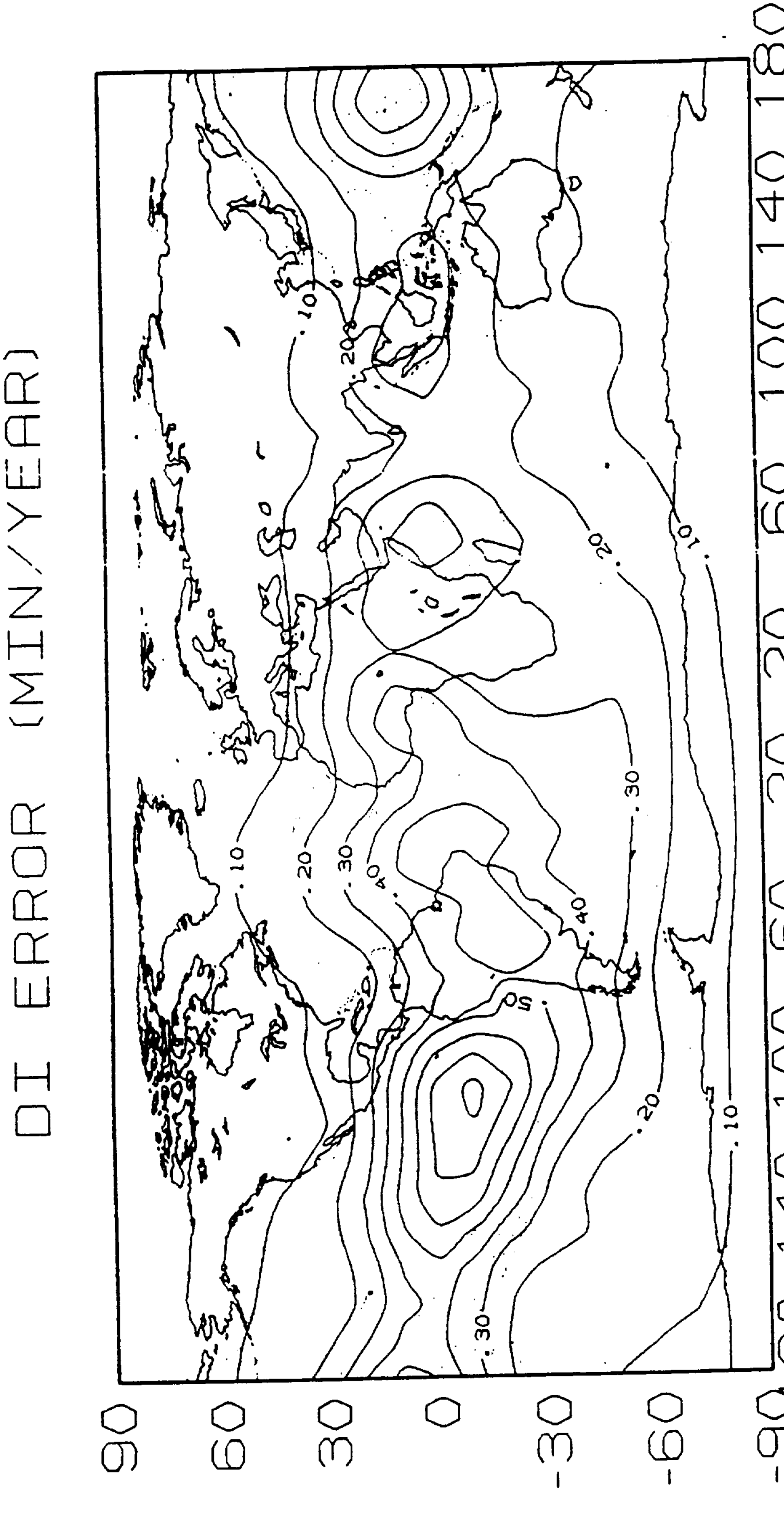
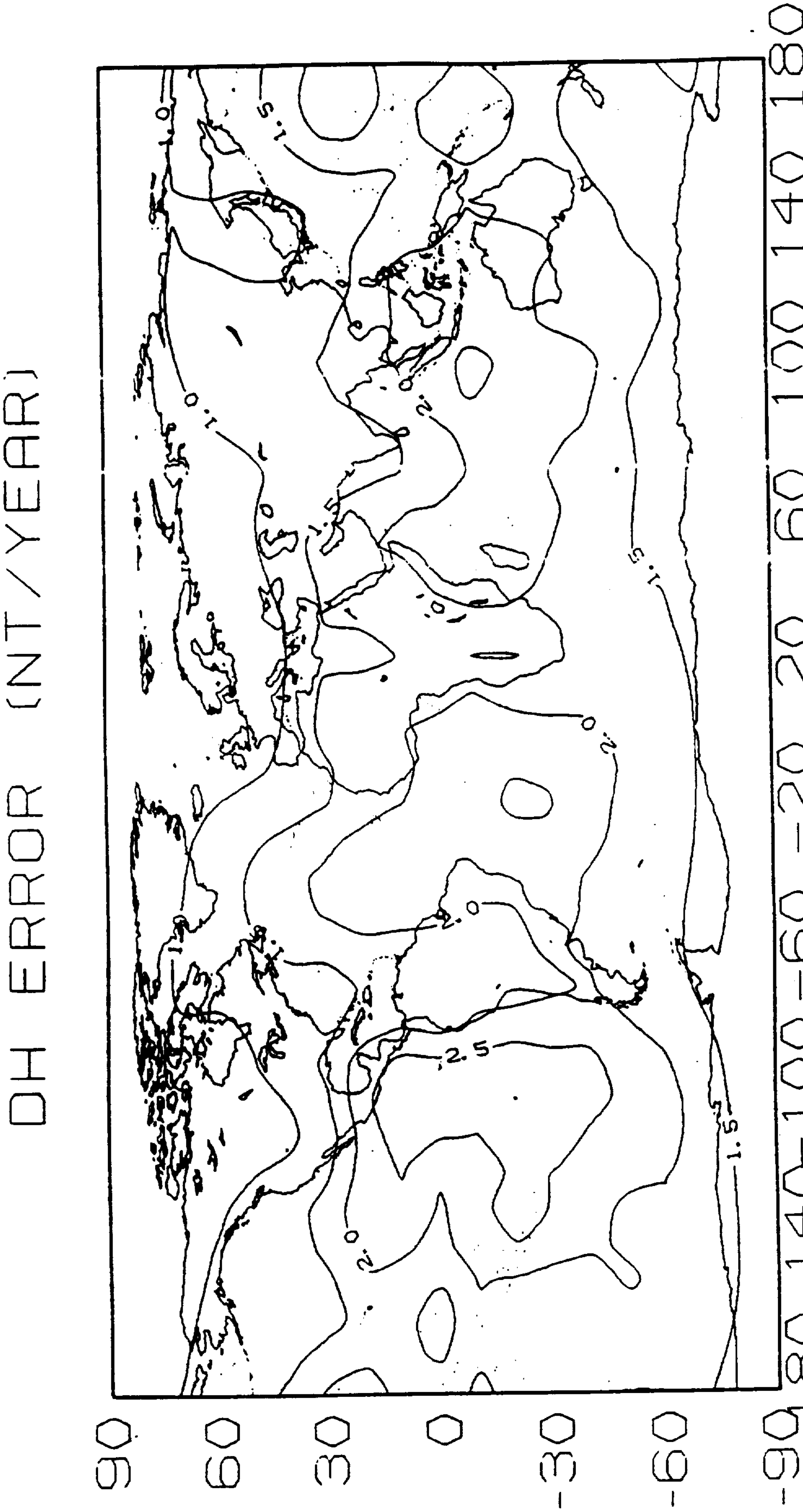
-40.
-60.
-80.
-100.
0.
20.
40.
60.
80.


DD ERROR (MIN/YEAR)
90
60
30
0
-30
-60
-90
-180 -140 -100 -60 -20 20 60 100 140 180
E=1980 T=1989 R=6371 A= 0
20
30
40
50


DI ERROR (MIN/YEAR)
E=1980 T=1989 R=6371 A= 0
-180 -140 -100 -60 -20 20 60 100 140 180
90 60 30 0 -30 -60 -90
.10
.20
.30
.40
.50


DH ERROR (NT/YEAR)
E=1980 T=1989 R=6371 A= 0
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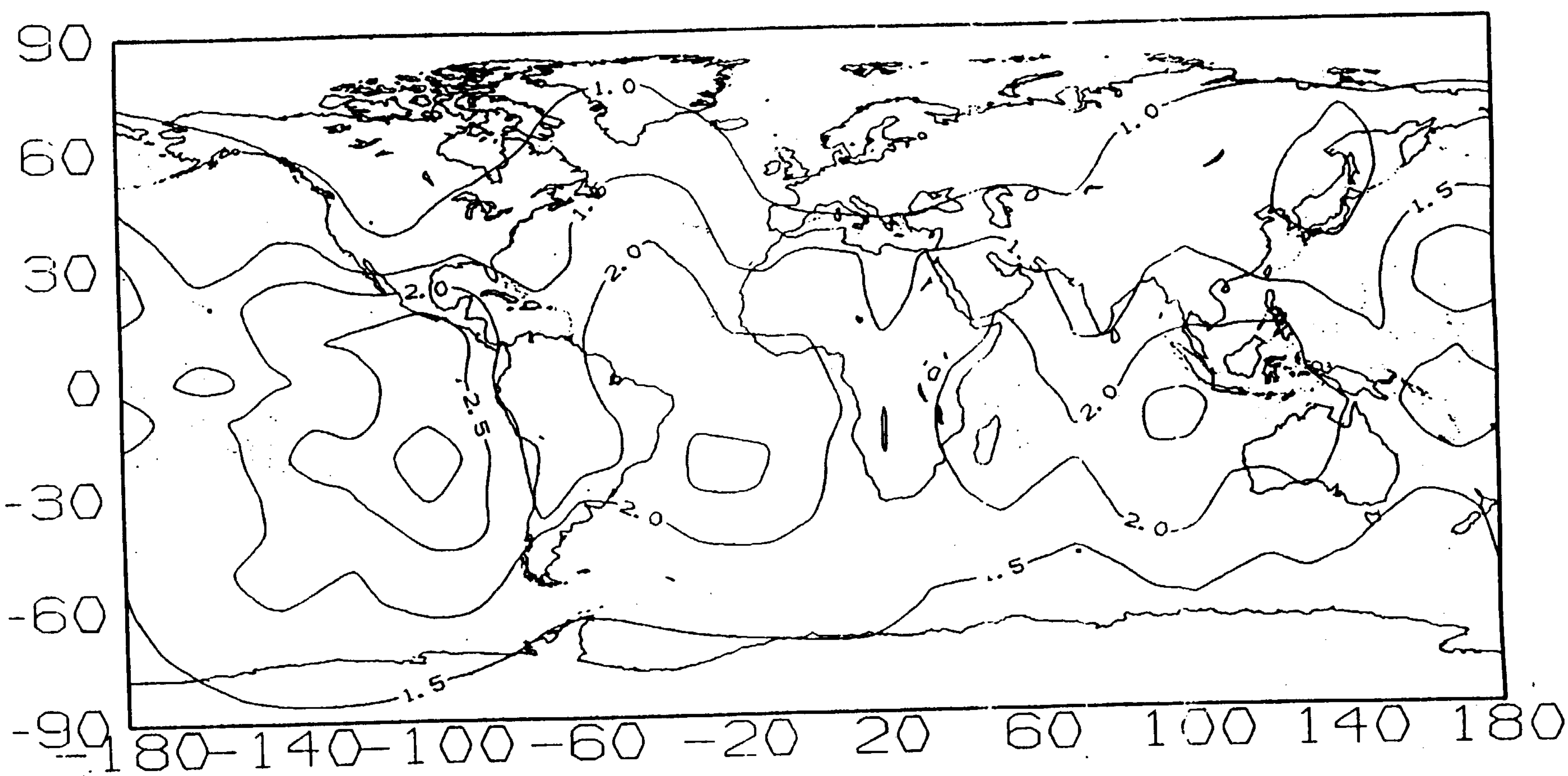
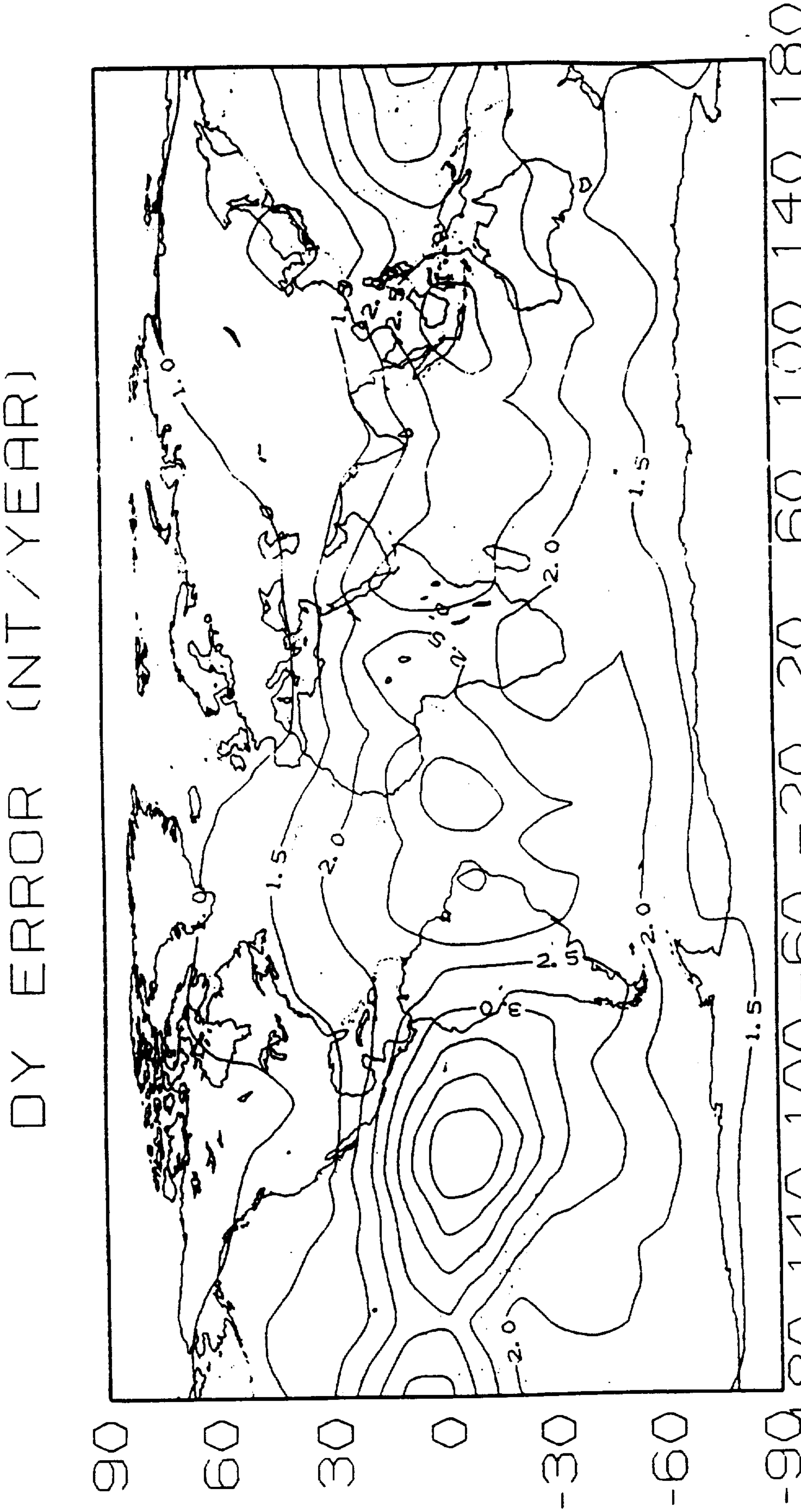
90 60 30 0 -30 -60 -90
1.0
1.5
2.0
2.5

DX ERROR (NT/YEAR



E=1980 T=1989 R=6371 A= 0


DY ERROR (NT/YEAR)
E=1980 T=1989 R=6371 A= 0
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-90 -60 -30 0 30 60 90
1.0
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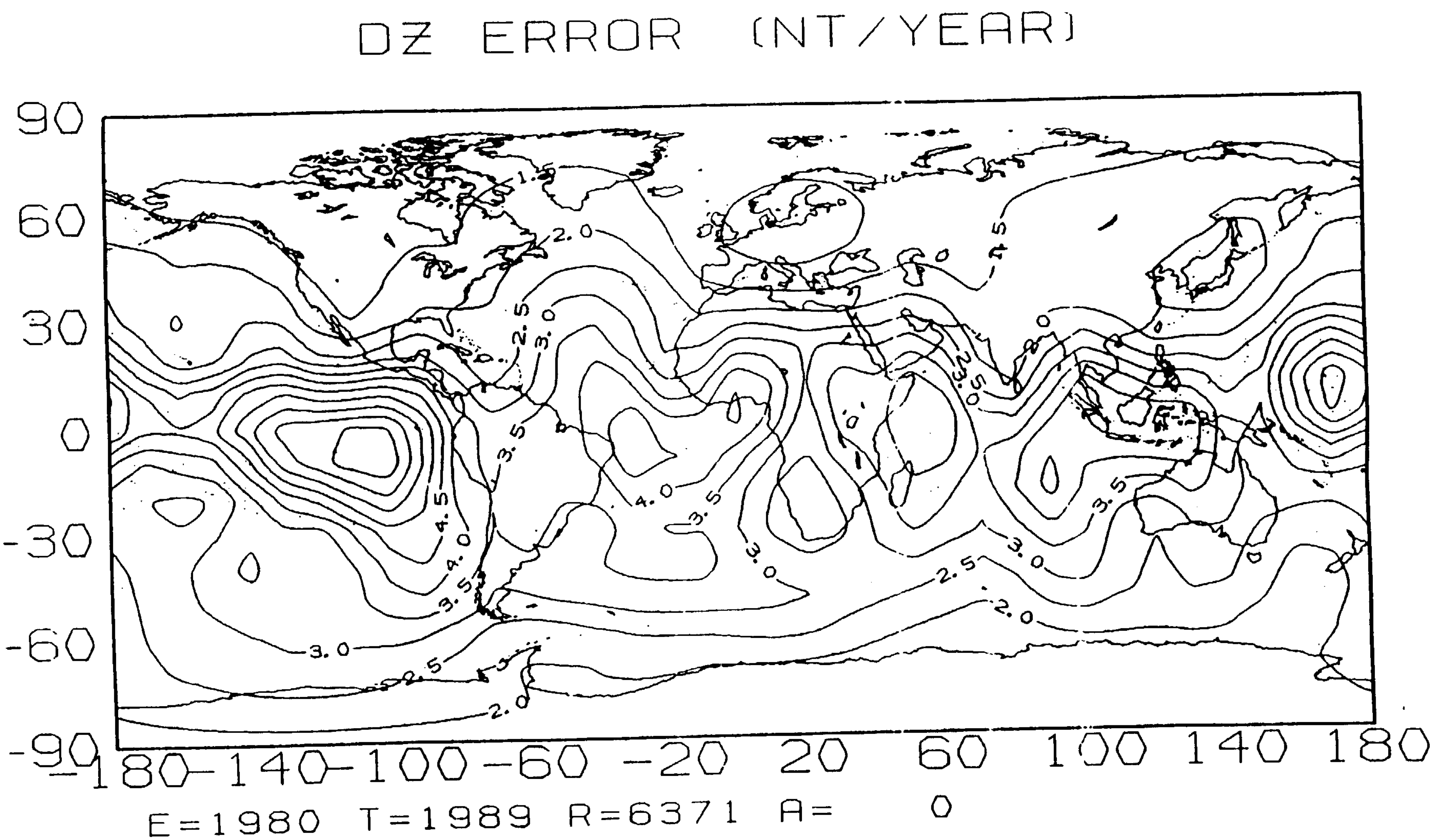
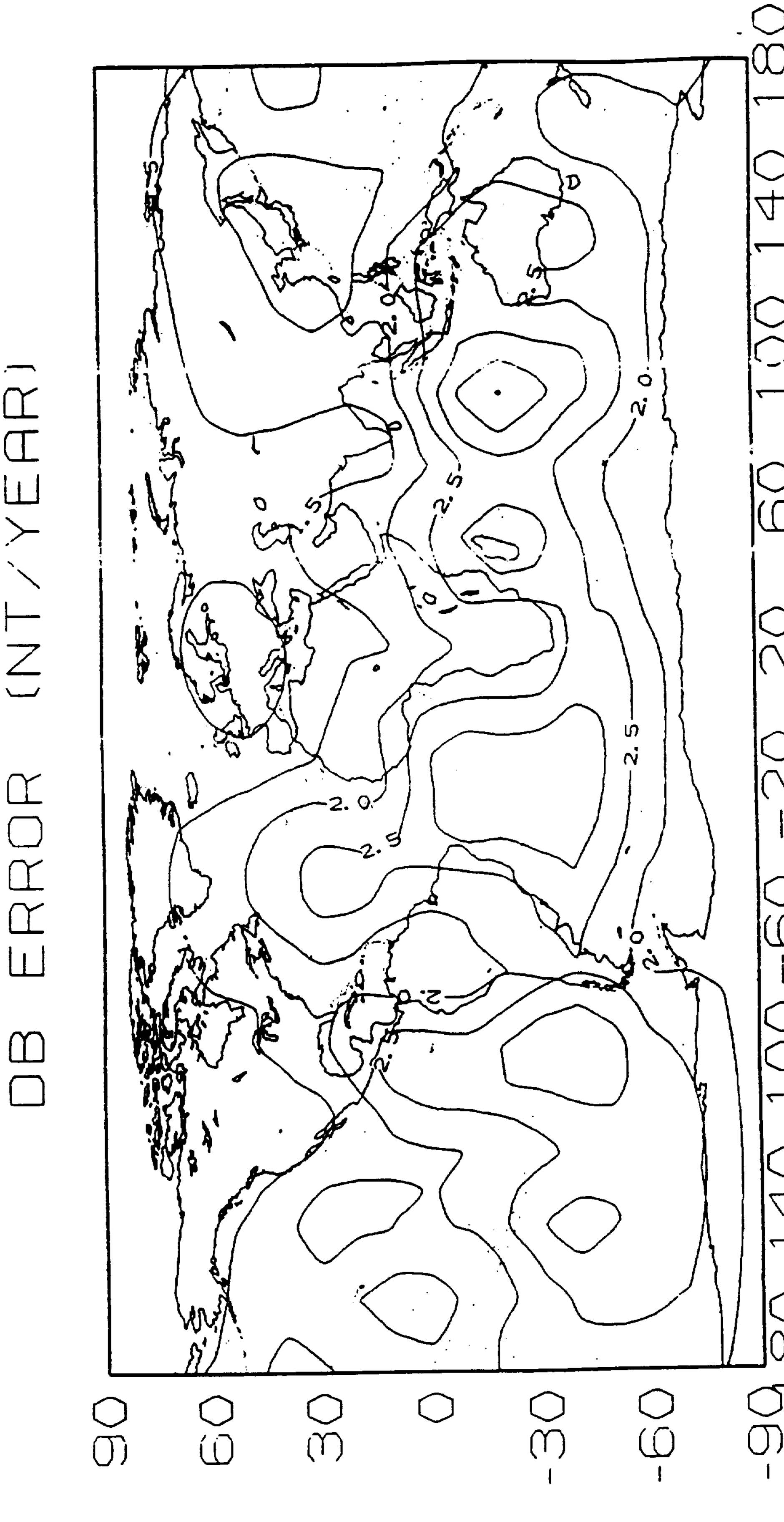
2.0
2.5
3.0


DZ ERROR (NT/YEAR)
90
60
30
0
-30
-60
-90
-180 -140 -100 -60 -20 20 60 100 140 180
1.5
2.0
2.5
3.0
3.5
4.0
4.5
E=1980 T=1989 R=6371 A= 0


DB ERROR (NT/YEAR)
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90 60 30 0 -30 -60 -90
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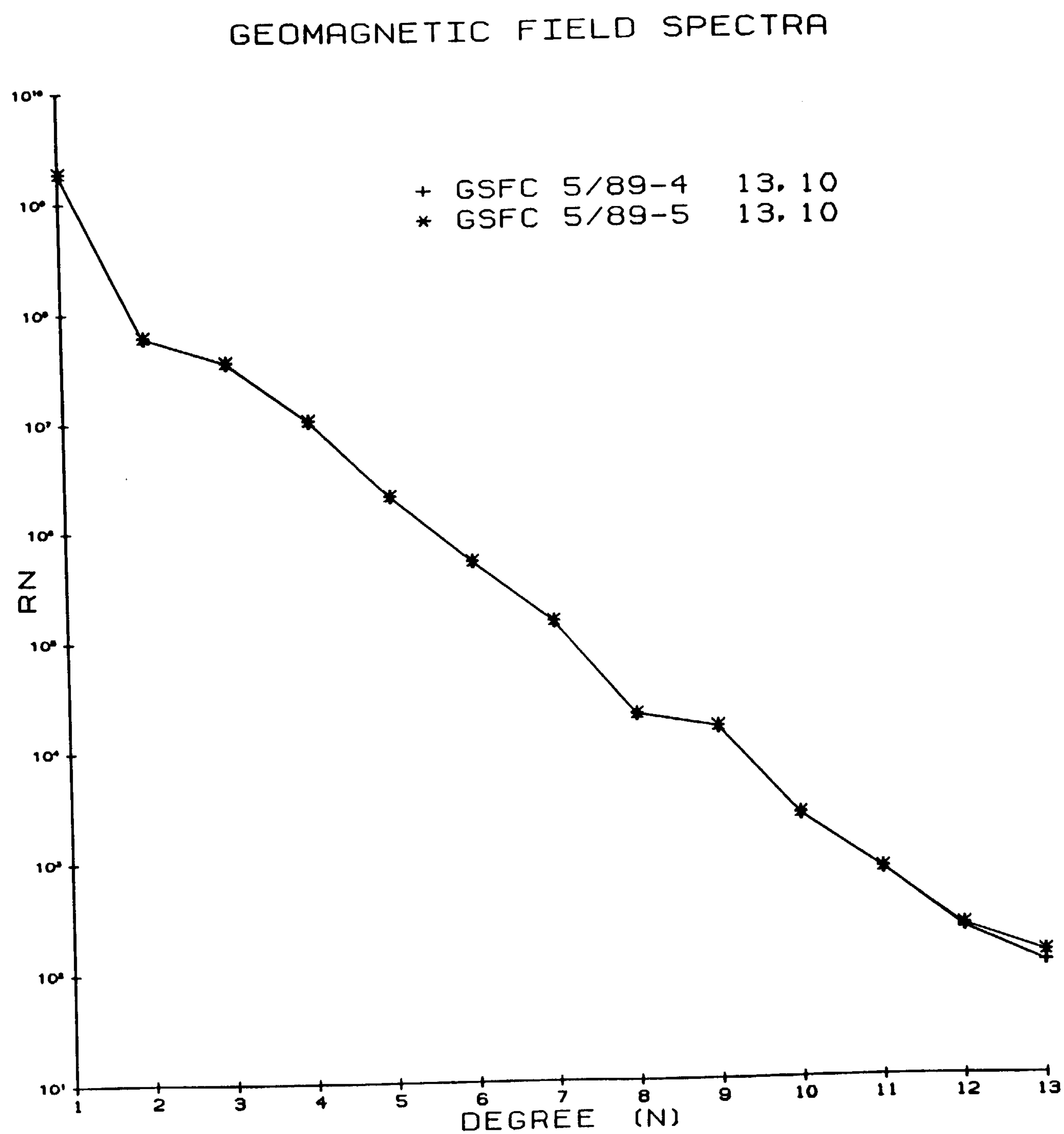
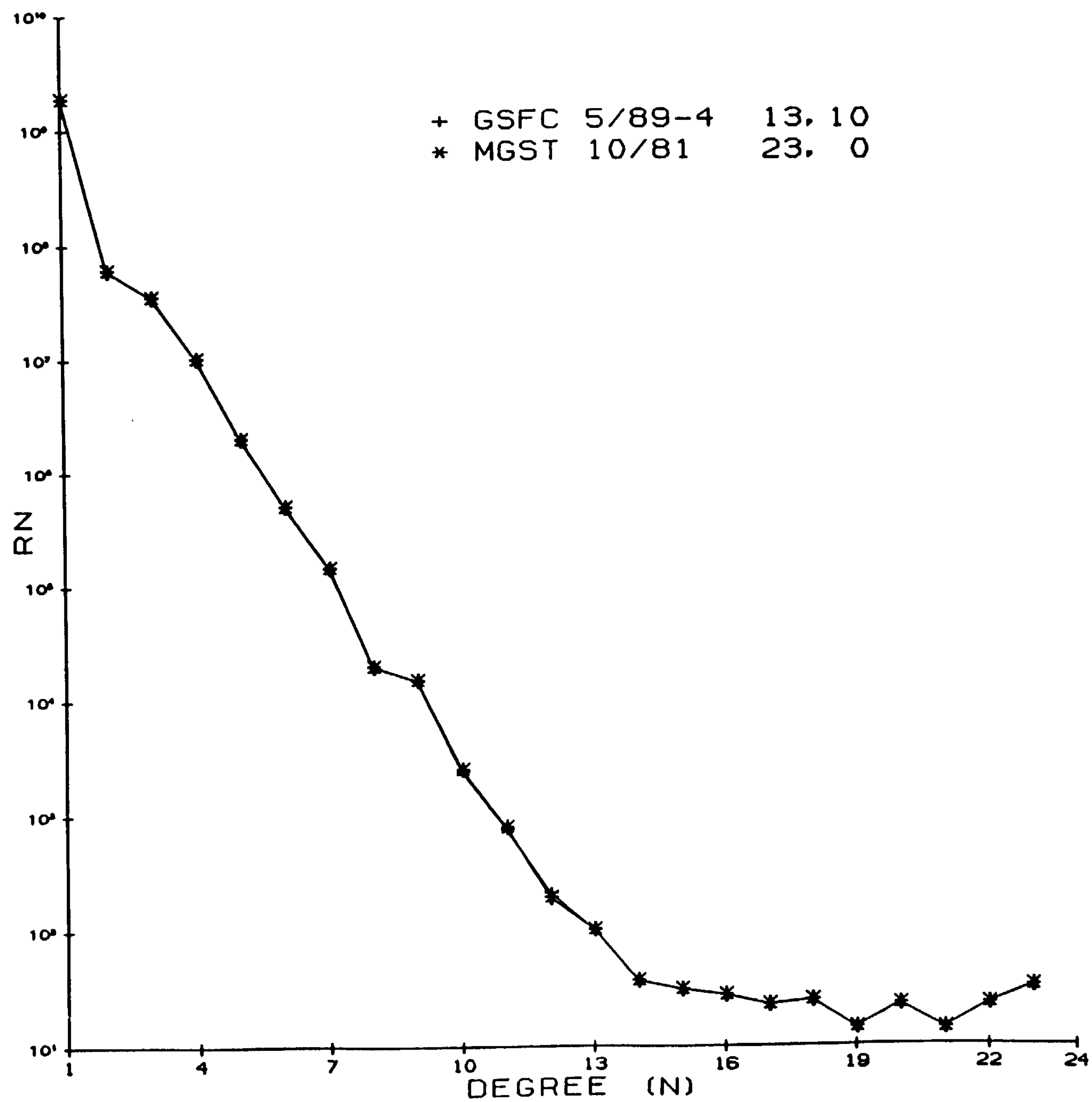
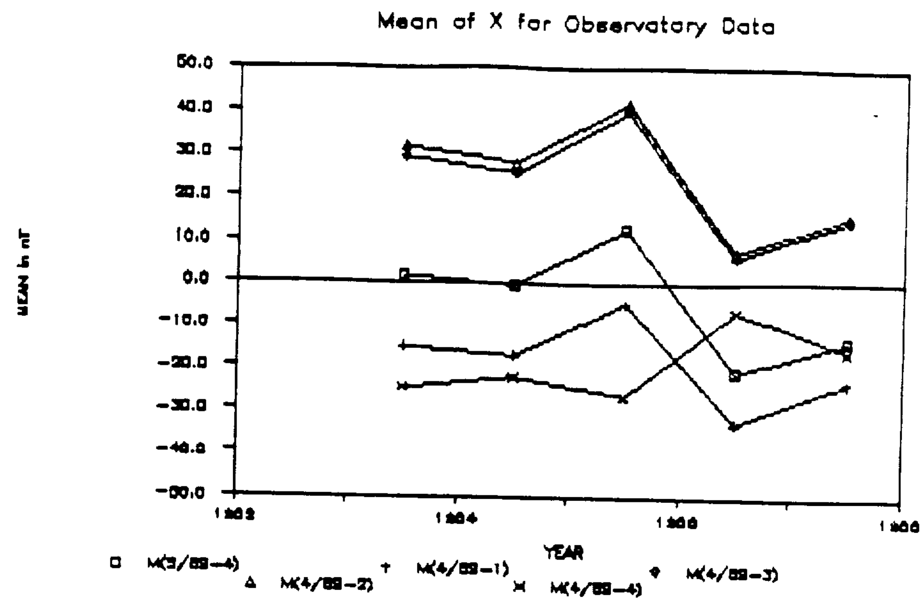
2.5

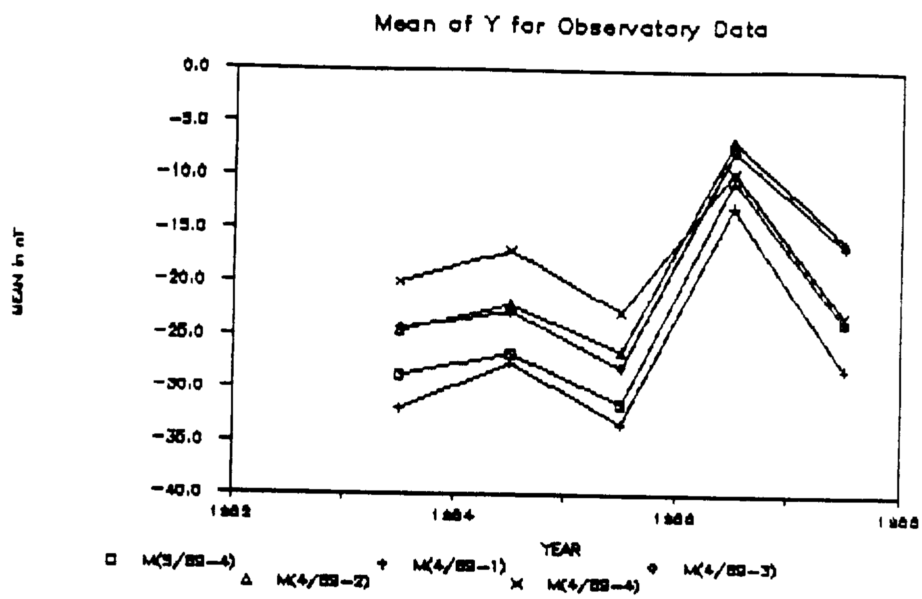

GEOMAGNETIC FIELD SPECTRA
+ GSFC 5/89-4 13, 10
* GSFC 5/89-5 13, 10
RN
DEGREE (N)

GEOMAGNETIC FIELD SPECTRA

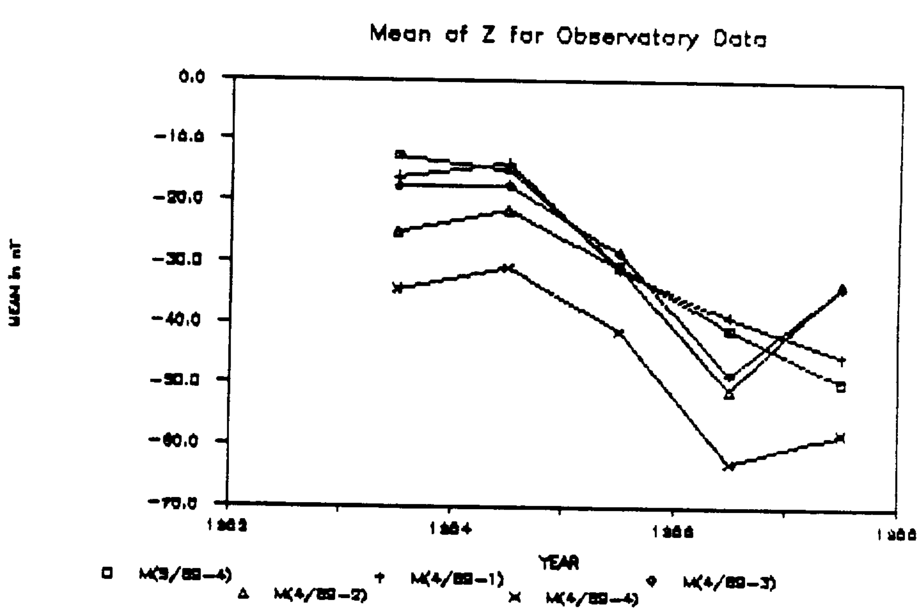



Mean of X for Observatory Data
MEAN in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

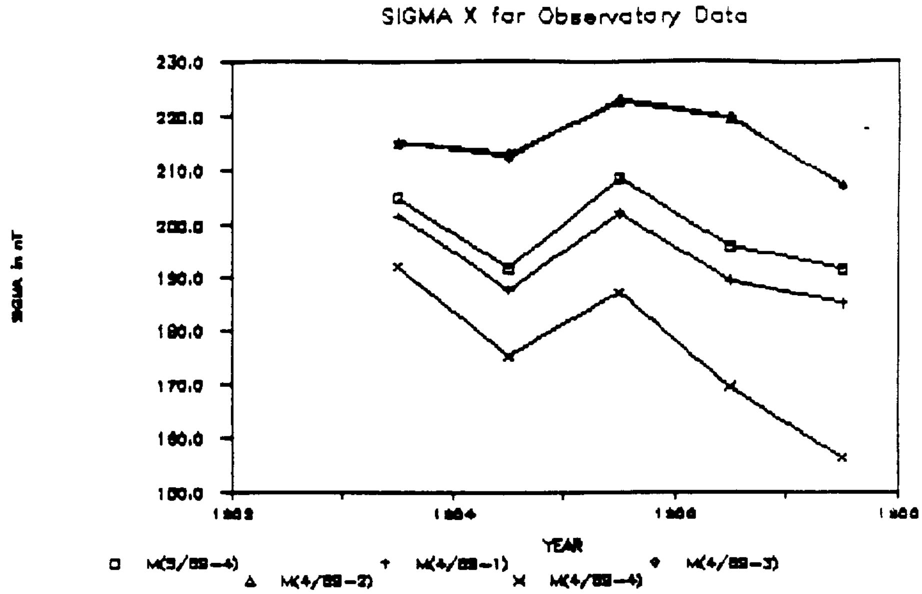
a


Mean of Y for Observatory Data
MEAN in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

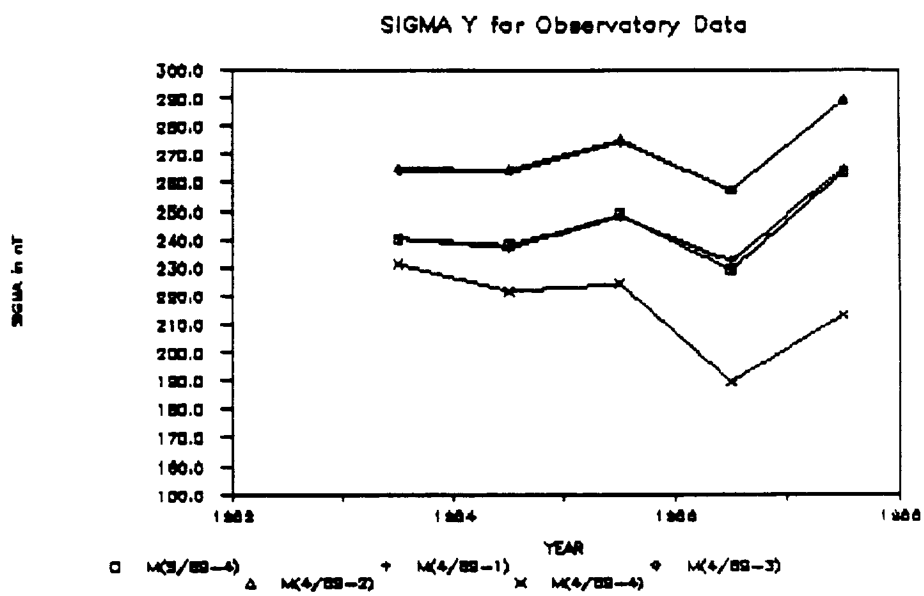
b


Mean of Z for Observatory Data
MEAN in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

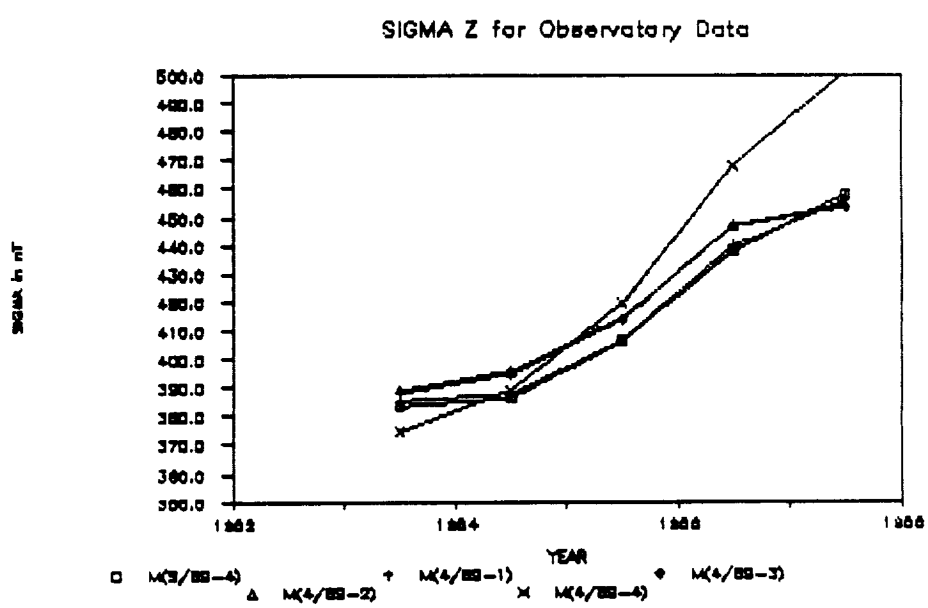
c


SIGMA X for Observatory Data
SIGMA in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

d

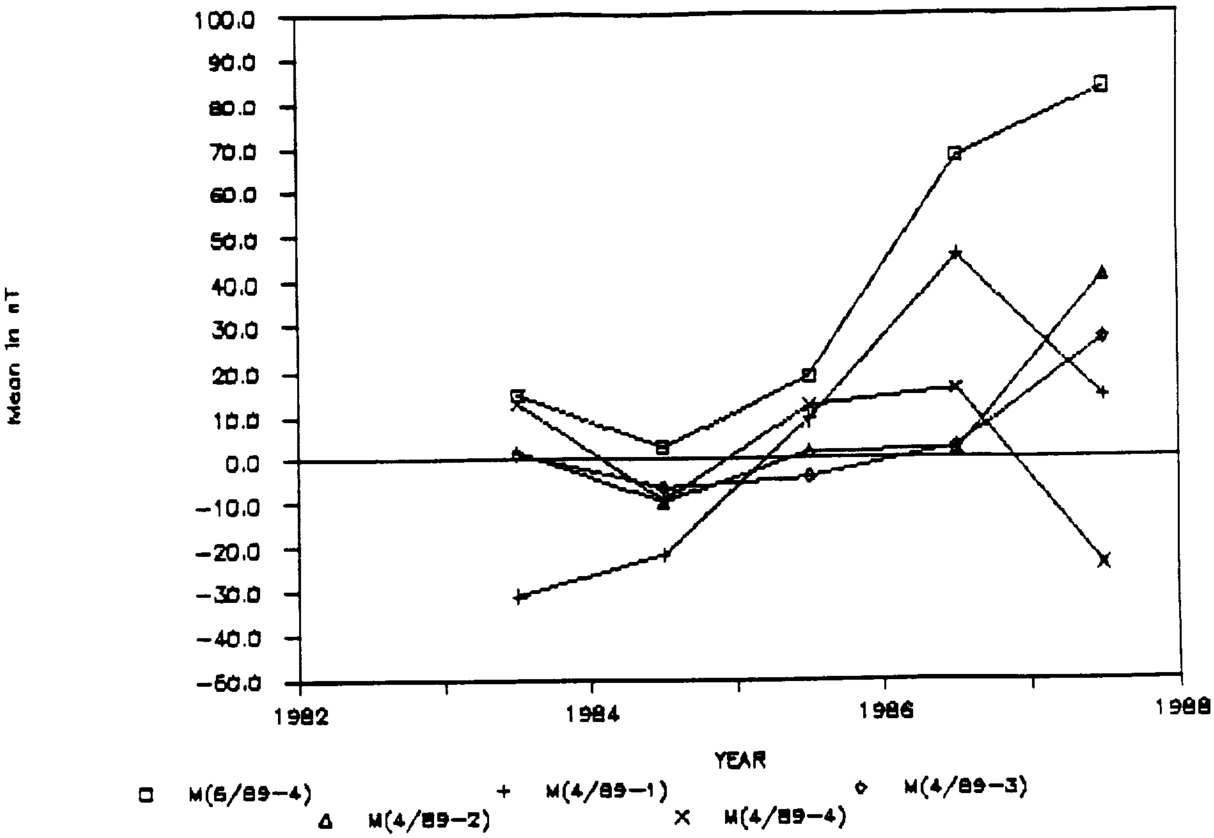

SIGMA Y for Observatory Data
SIGMA in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

e


SIGMA Z for Observatory Data
SIGMA in nT
YEAR
M(3/89-4)
M(4/89-2)
M(4/89-1)
M(4/89-4)
M(4/89-3)

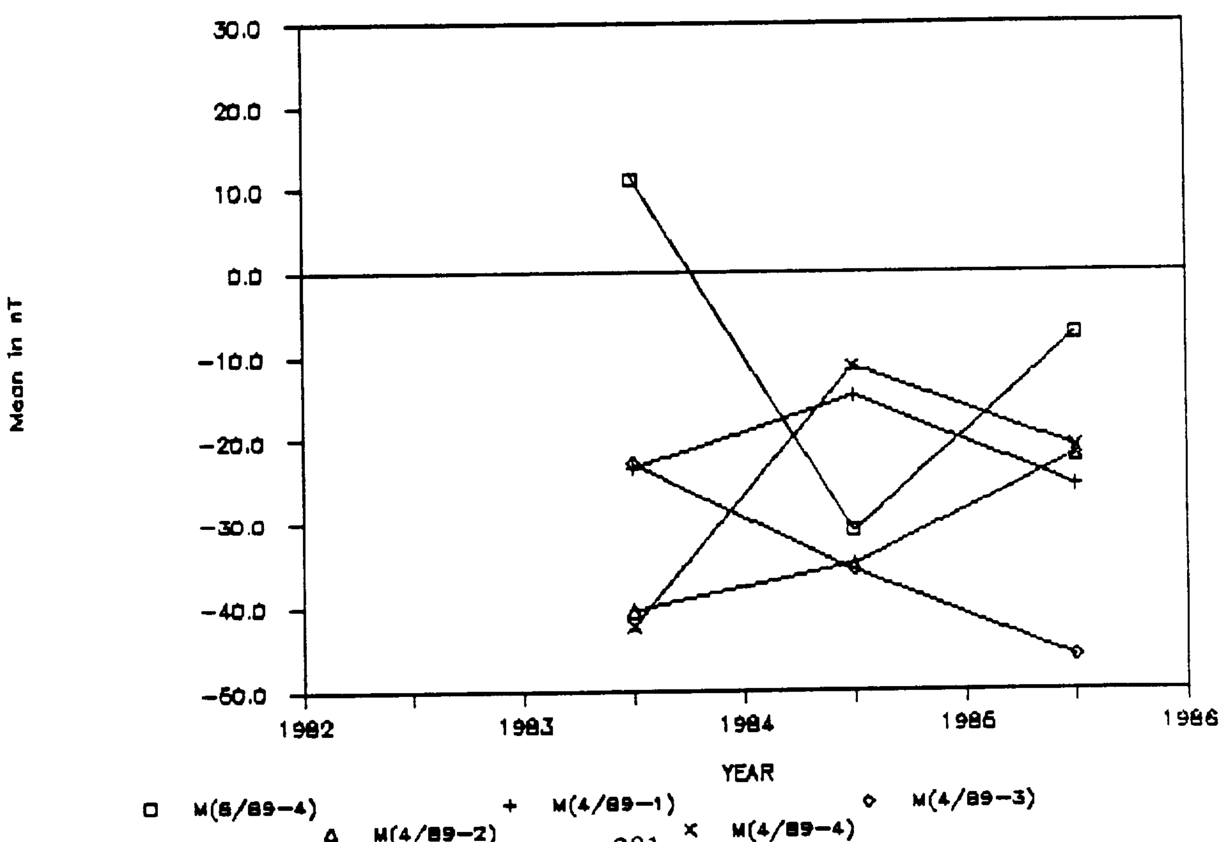
f

Mean B for Survey Data

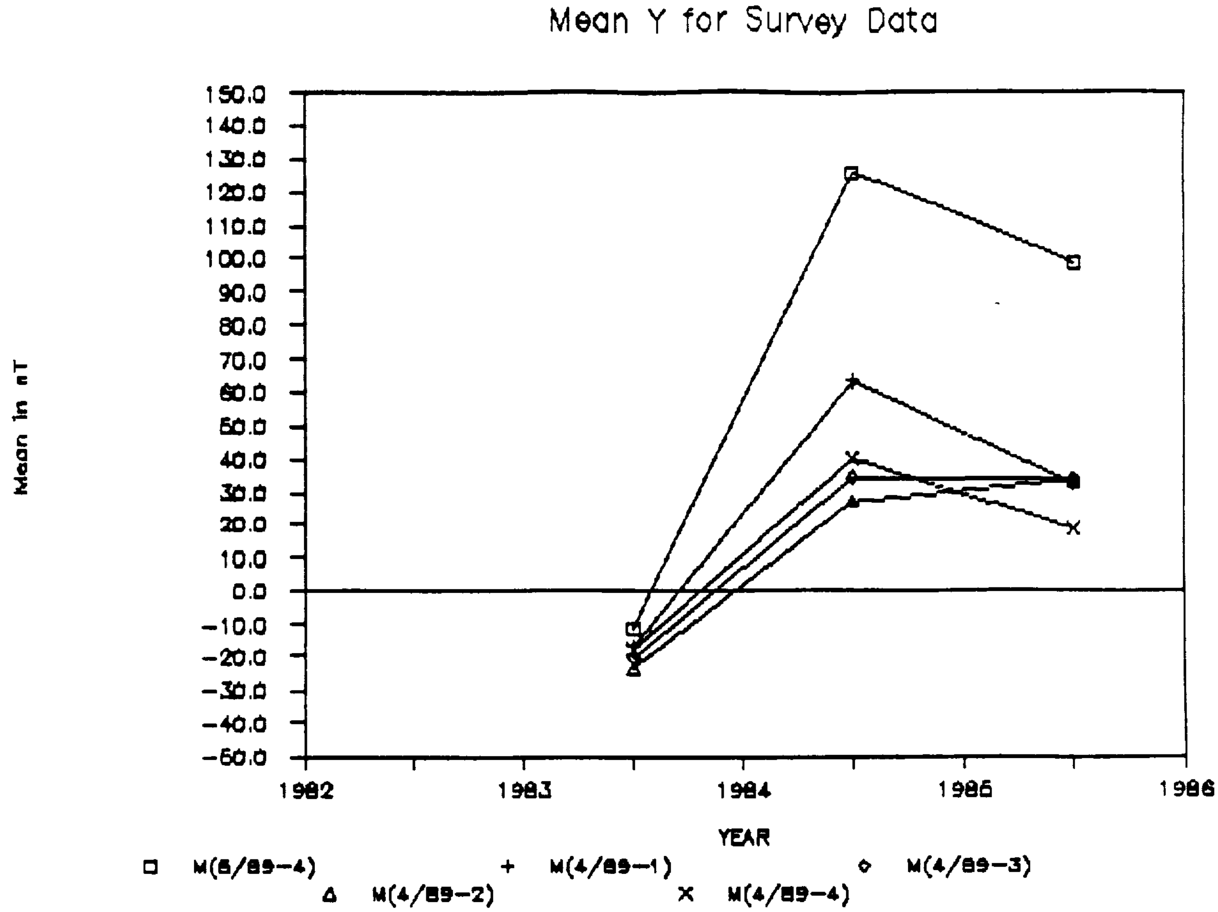


g

Mean X for Survey Data

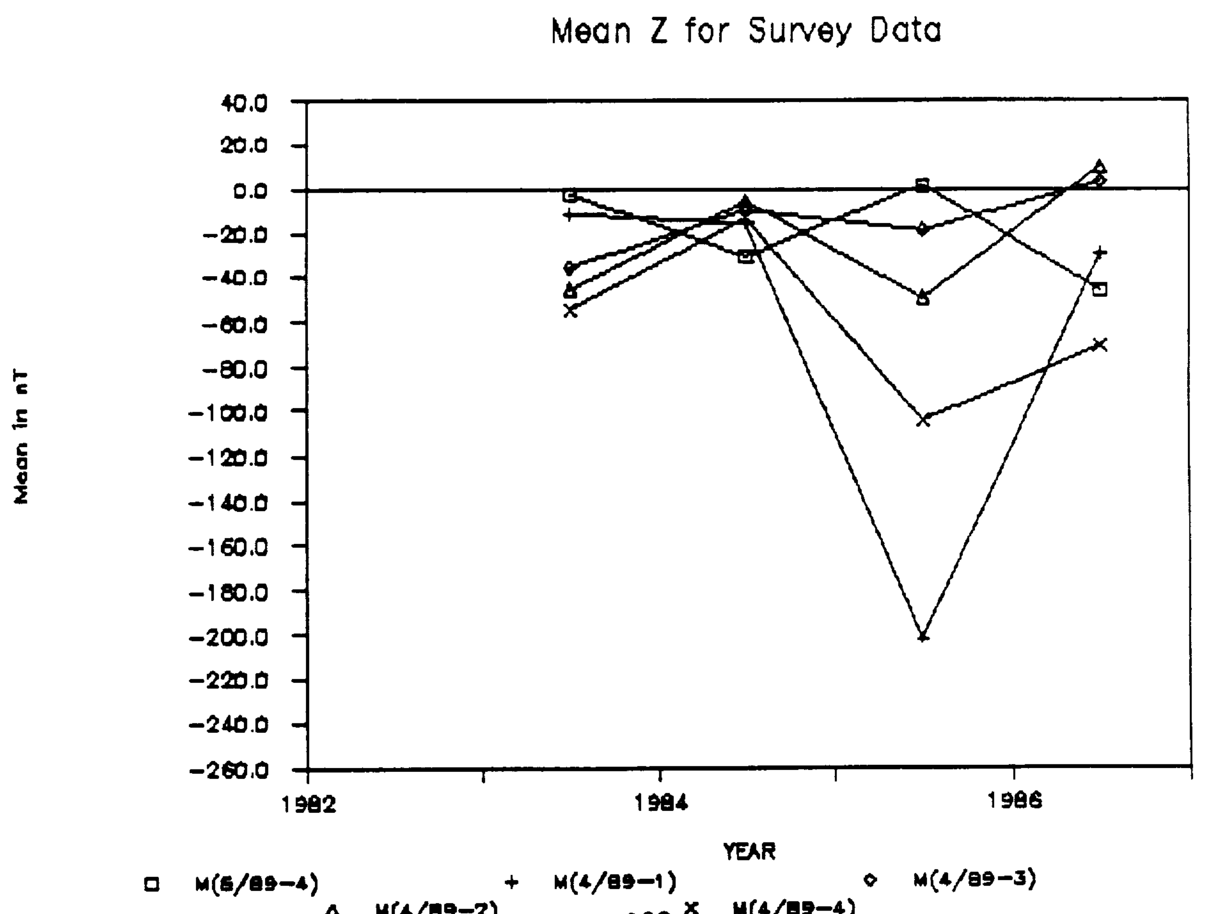


h



Mean Y for Survey Data
Mean in nT
YEAR
M(6/89-4)
M(4/89-1)
M(4/89-3)
M(4/89-2)
M(4/89-4)

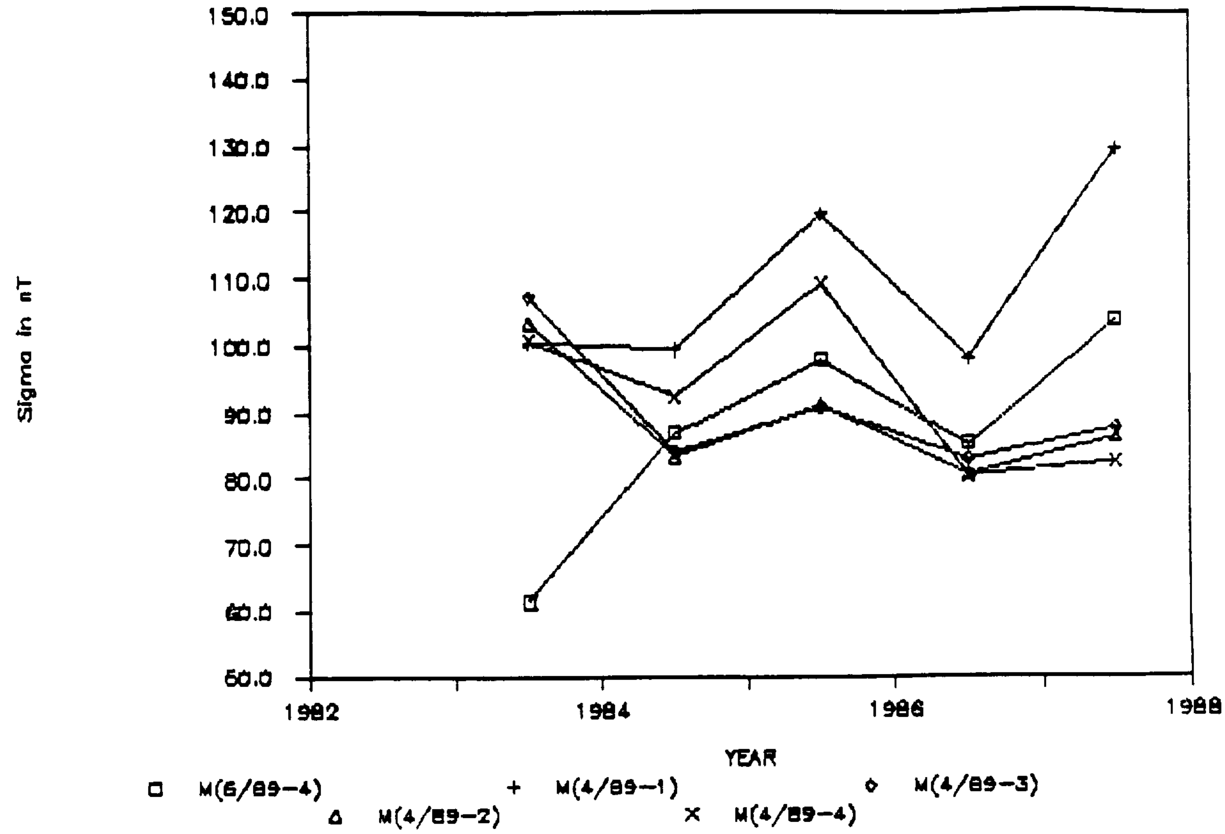
i



Mean Z for Survey Data
Mean in nT
YEAR
M(6/89-4)
M(4/89-1)
M(4/89-3)
M(4/89-2)
M(4/89-4)

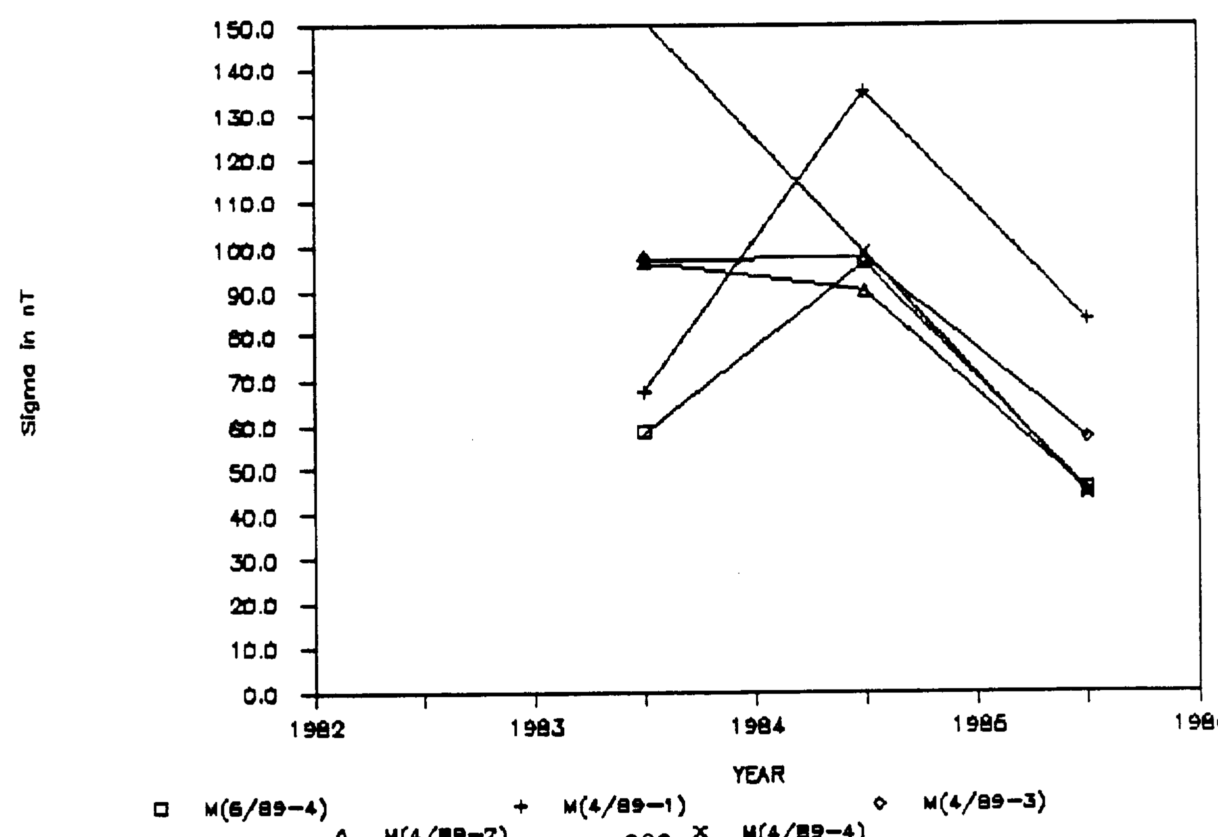
j

Sigma B for Survey Data

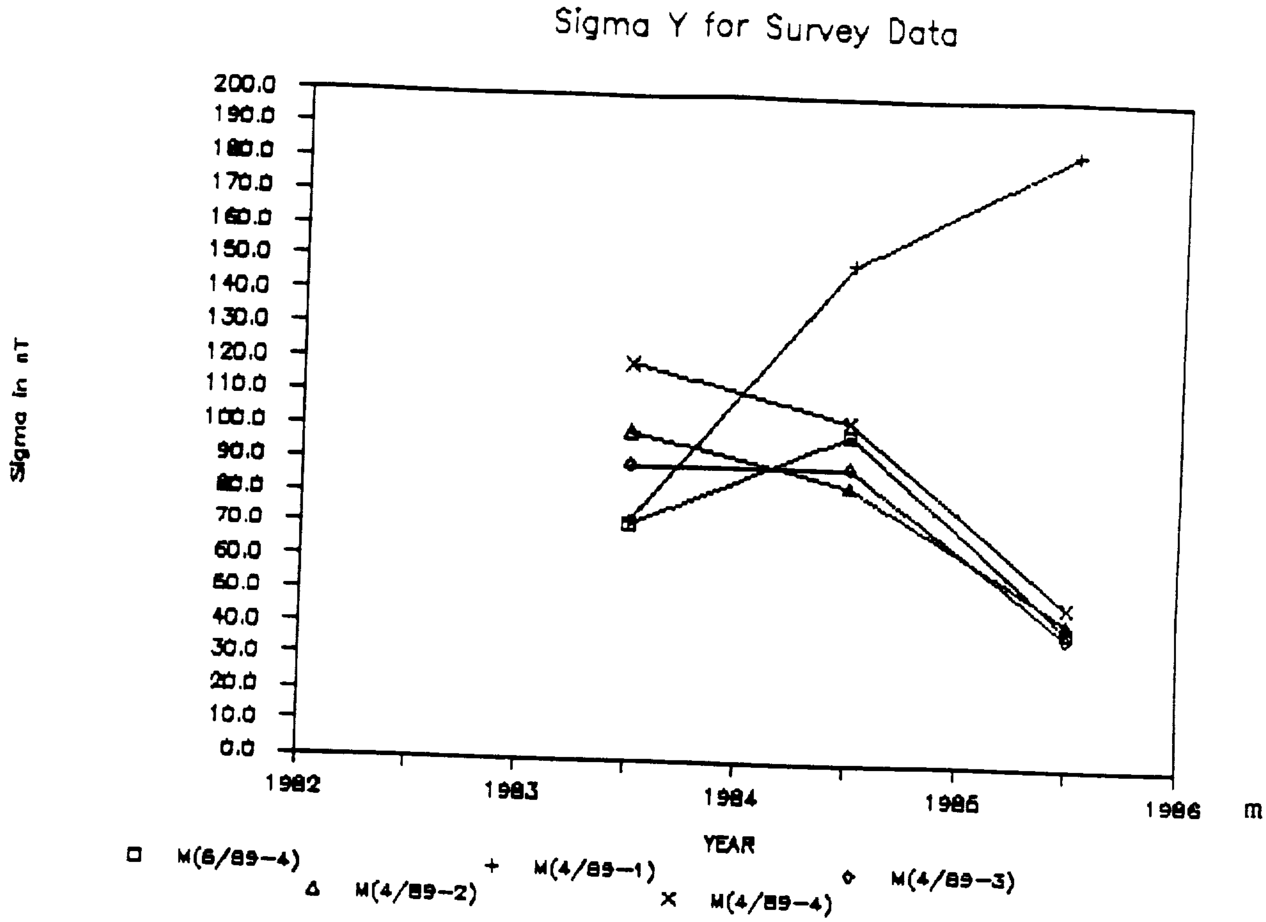


k

Sigma X for Survey Data

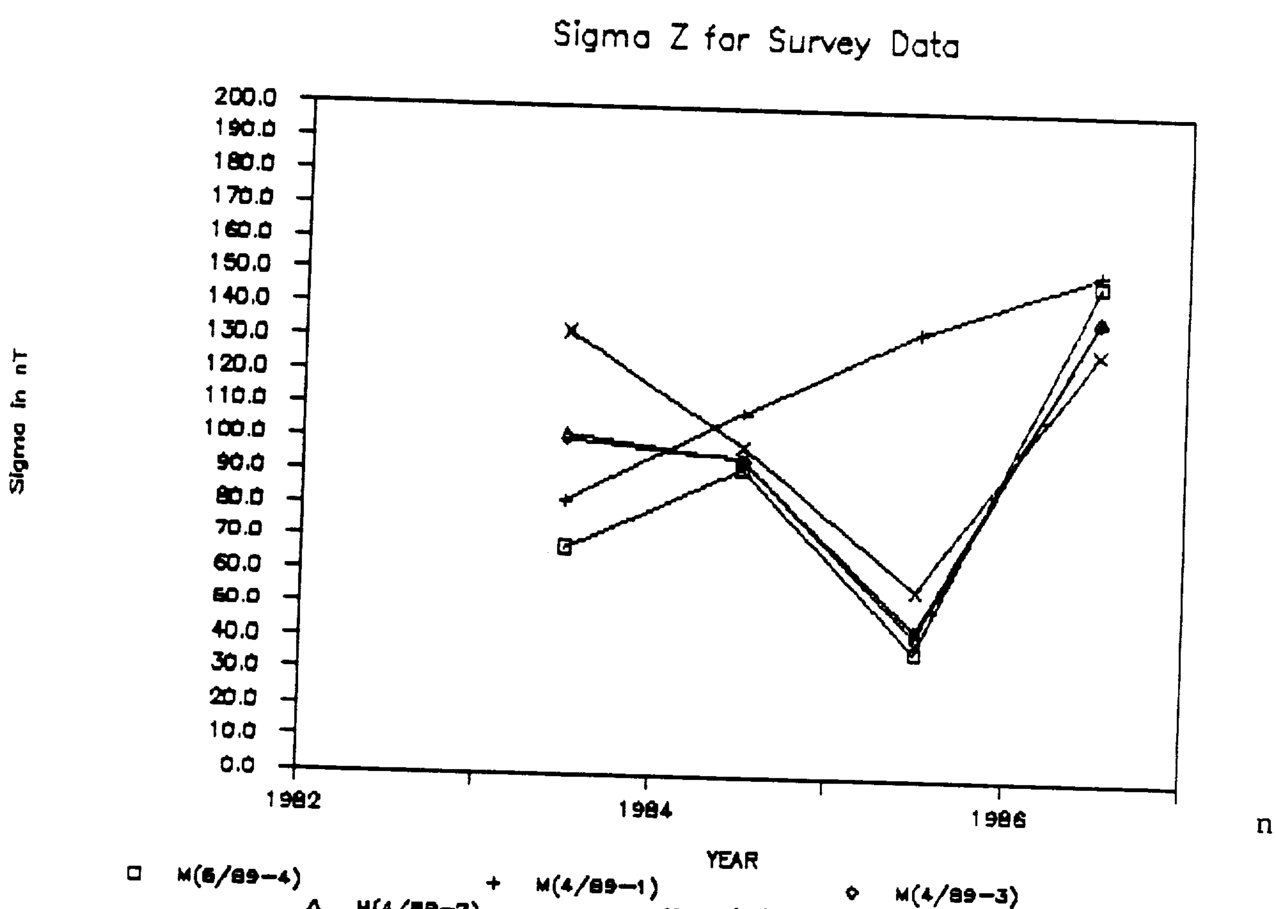


l



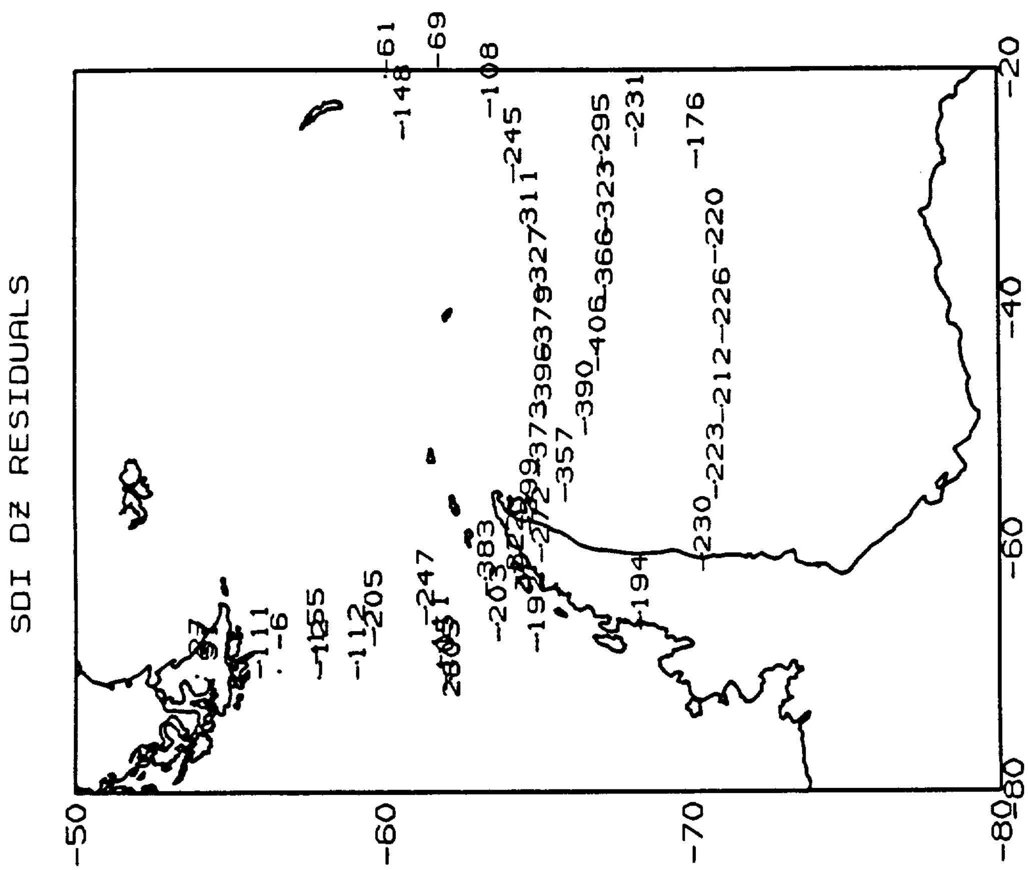
Sigma Y for Survey Data
Sigma in nT
200.0
190.0
180.0
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1982
1983
1984
1985
1986
YEAR
M(6/89-4)
M(4/89-1)
M(4/89-3)
M(4/89-2)
M(4/89-4)

m

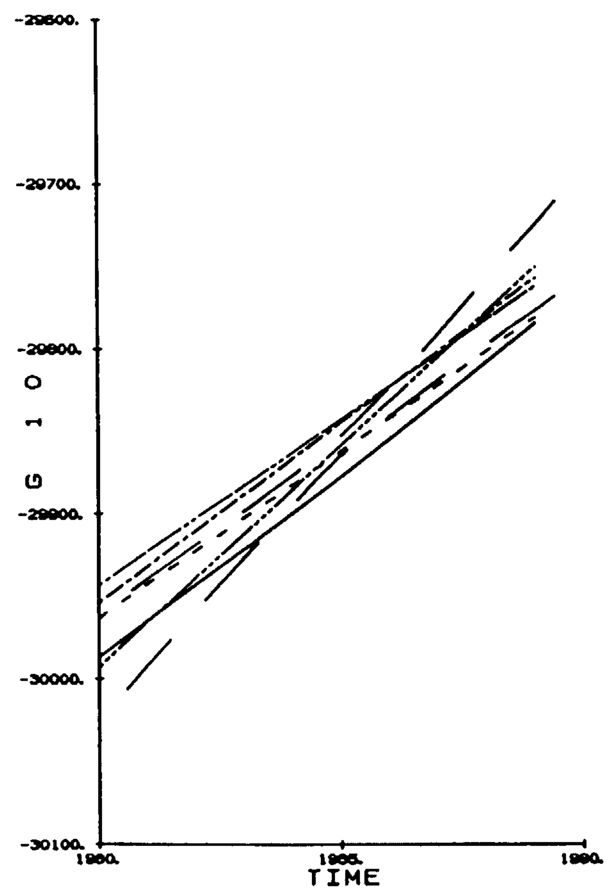


Sigma Z for Survey Data
Sigma in nT
200.0
190.0
180.0
170.0
160.0
150.0
140.0
130.0
120.0
110.0
100.0
90.0
80.0
70.0
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1982
1984
1986
YEAR
M(6/89-4)
M(4/89-1)
M(4/89-3)
M(4/89-2)
M(4/89-4)

n

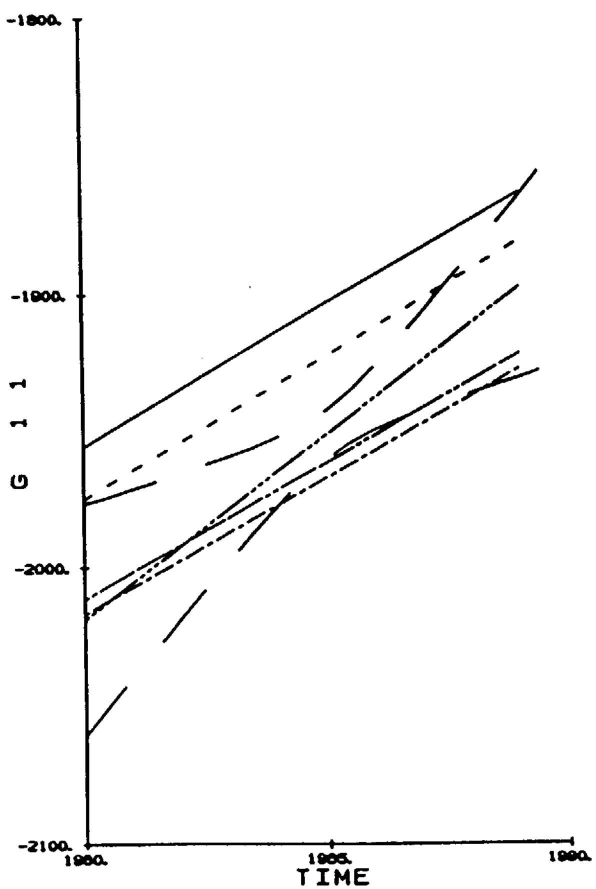

SDI DZ RESIDUALS
-50
-60
-70
-80
-20
-40
-60
-80

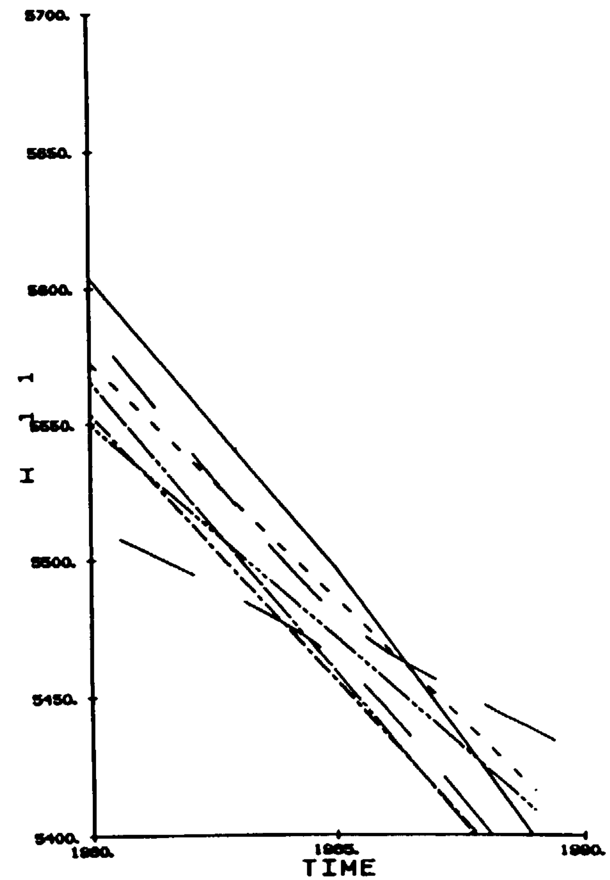
GSFC 4/89 & IGRF85



IGRF85 ——— 4/89-1 - - - - 4/89-2 -·-· 4/89-3 -··- 4/89-4 -···- (SIGMA — —)

GSFC 4/89 & IGRF85





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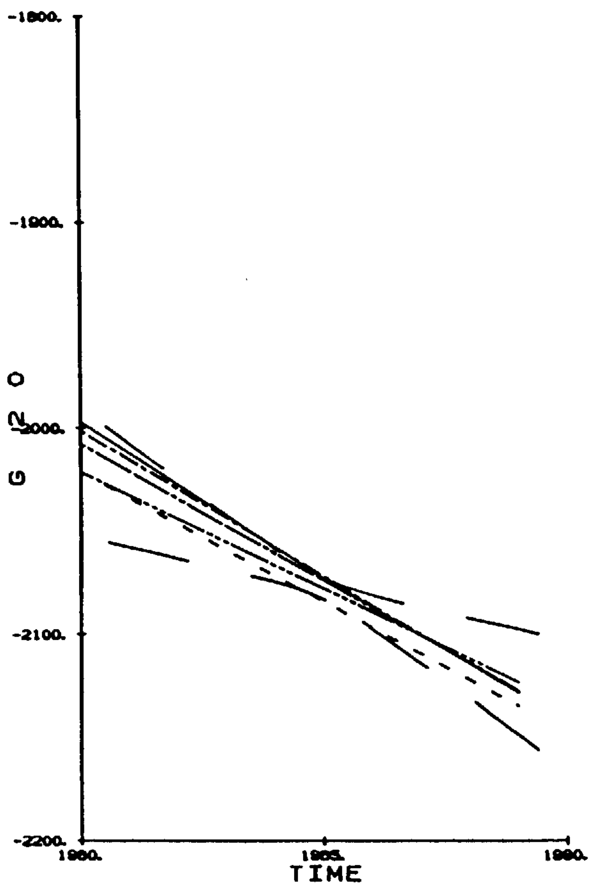
GSFC 4/89 & IGRF85



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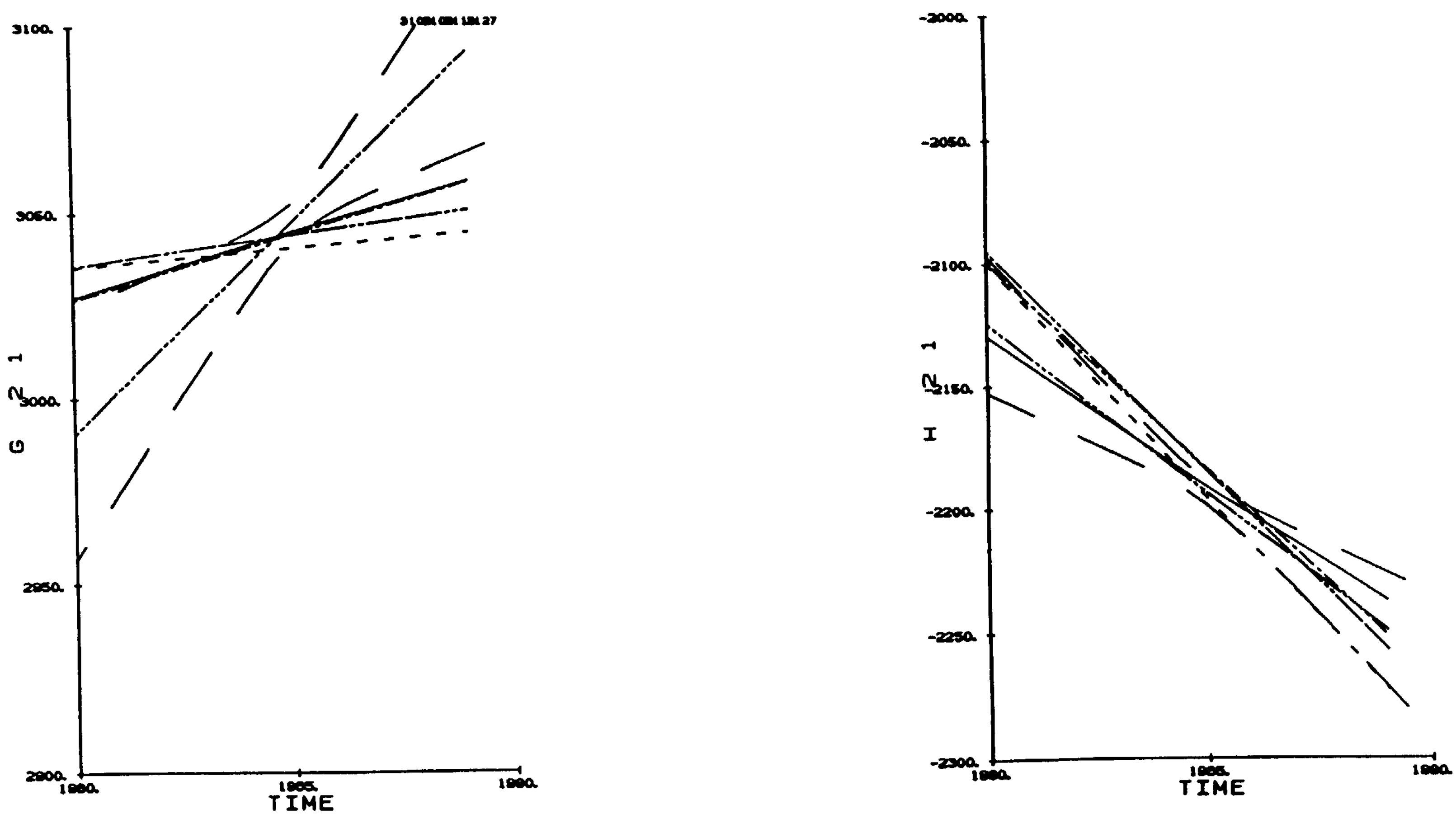
GSFC 4/89 & IGRF85



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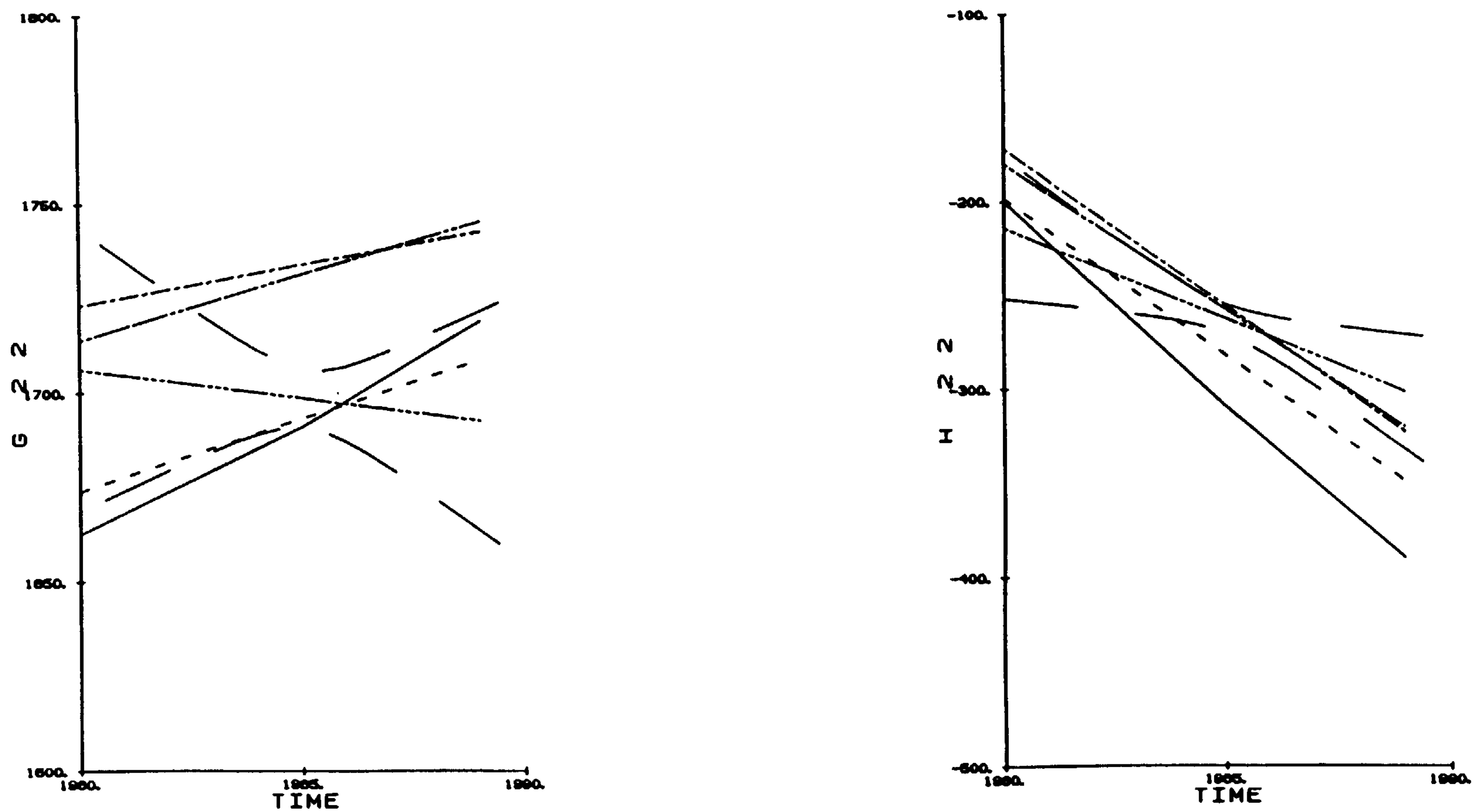
GSFC 4/89 & IGRF85



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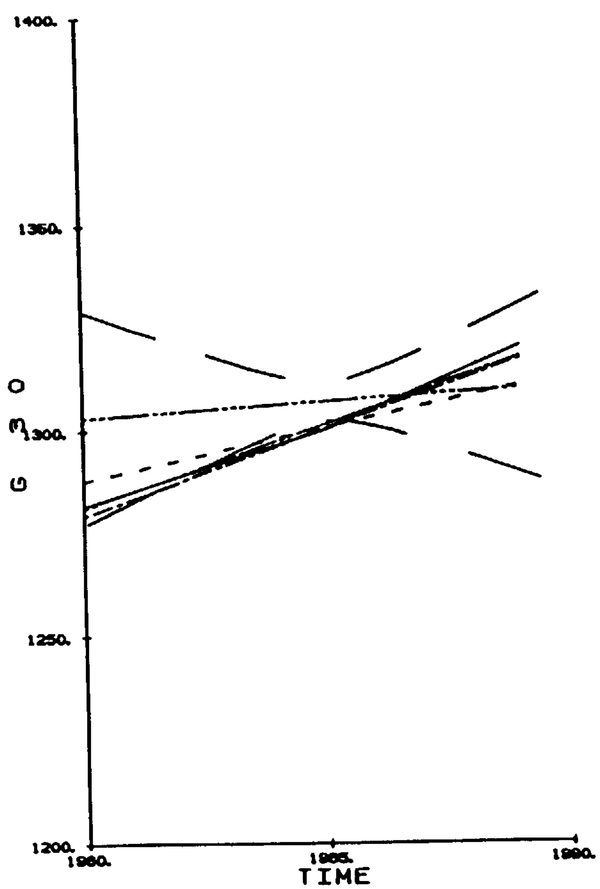
GSFC 4/89 & IGRF85



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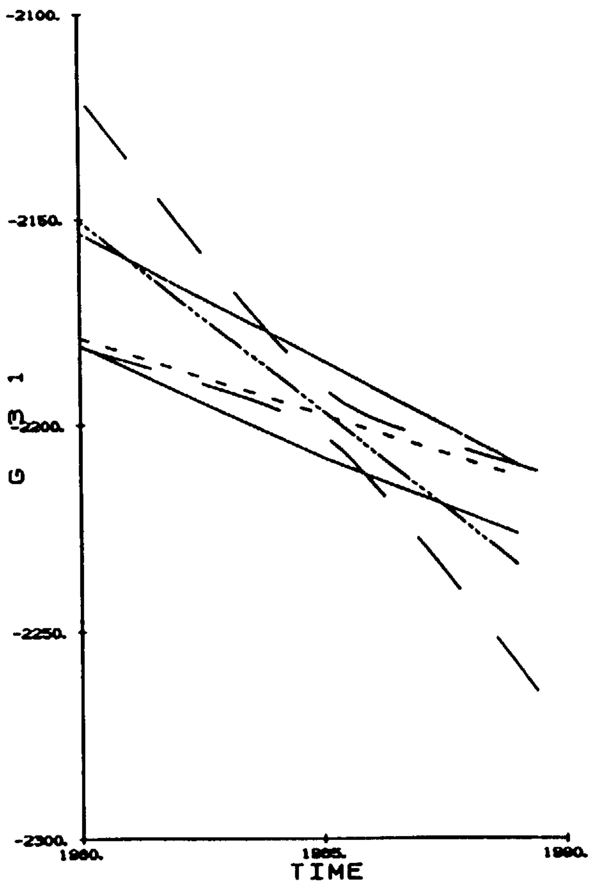
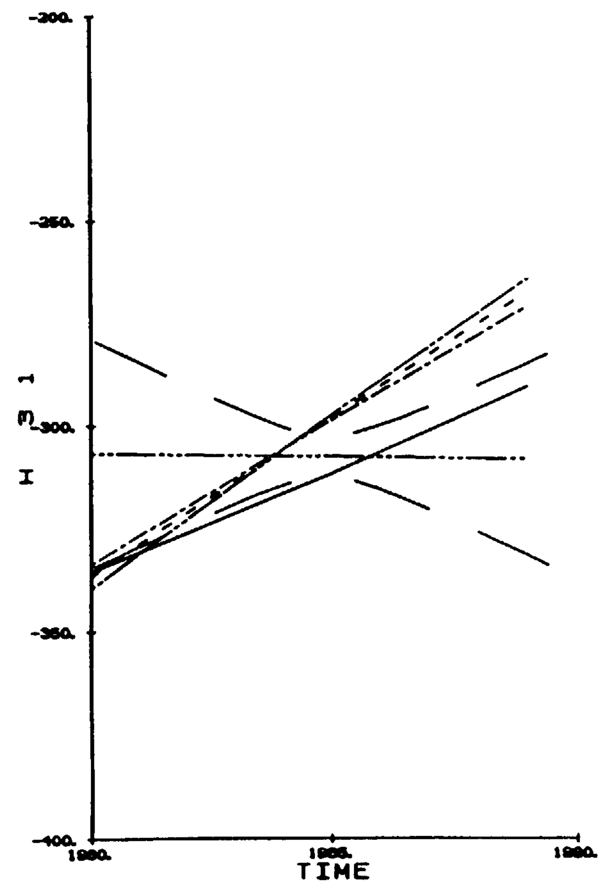
GSFC 4/89 & IGRF85





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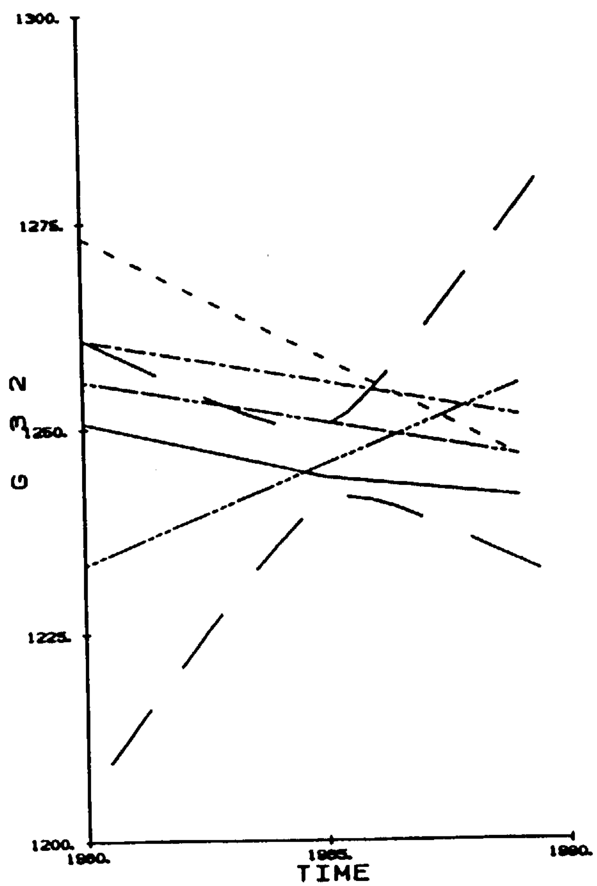
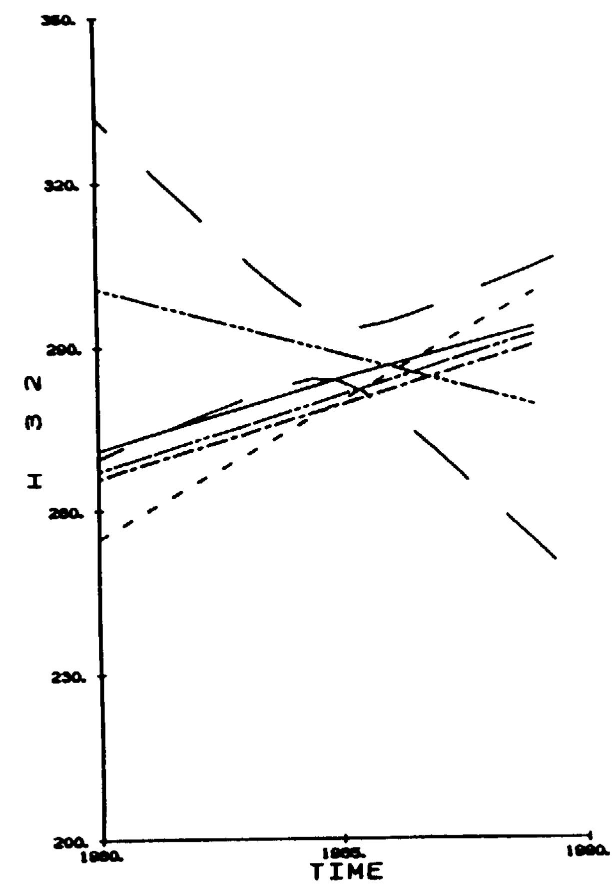
GSFC 4/89 & IGRF85





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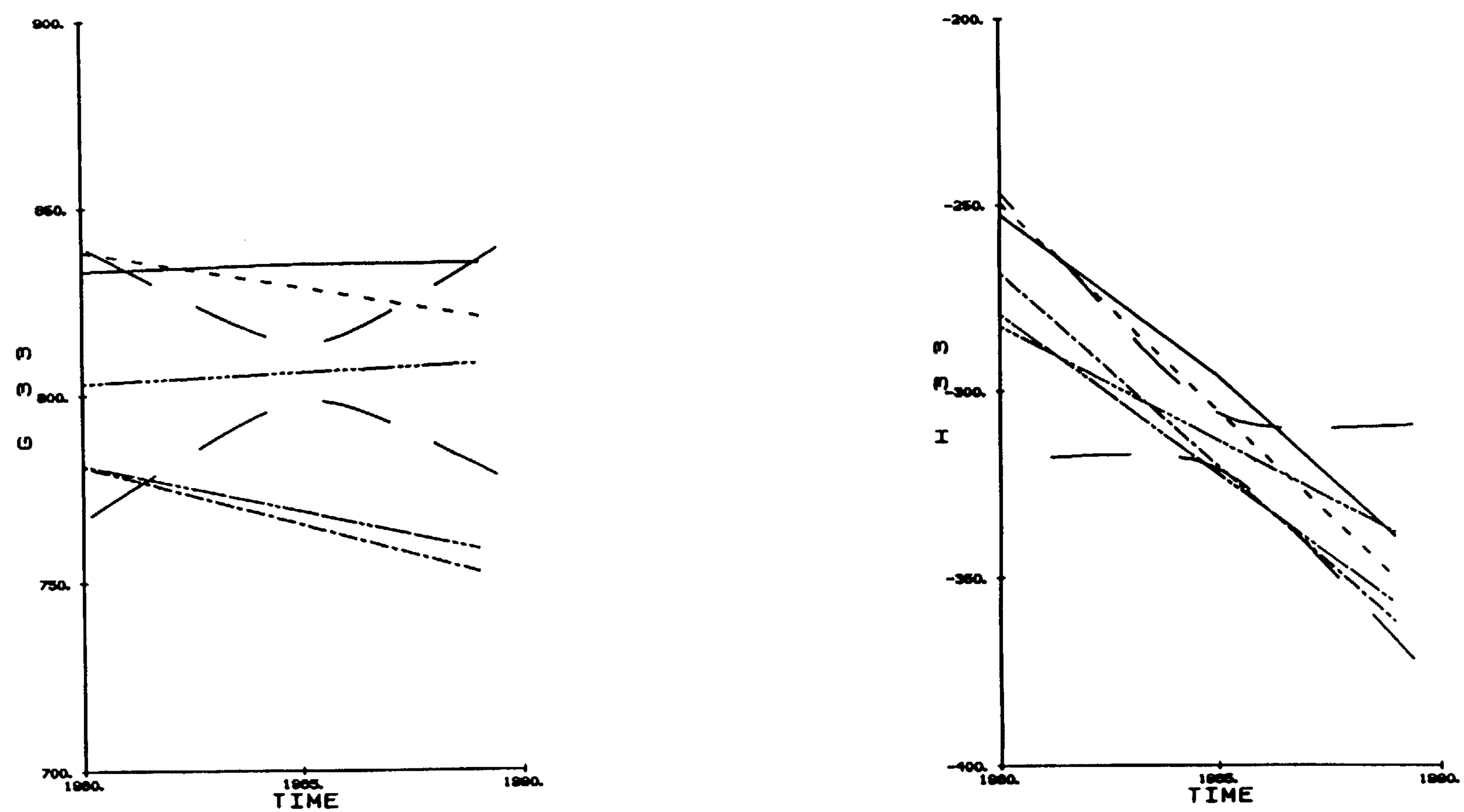
GSFC 4/89 & IGRF85



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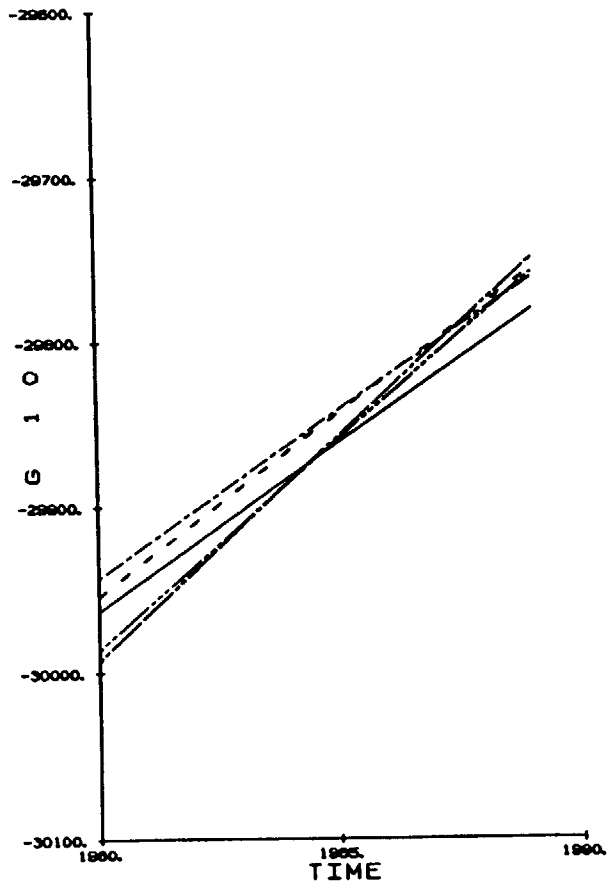
GSFC 4/89 & 5/89-4



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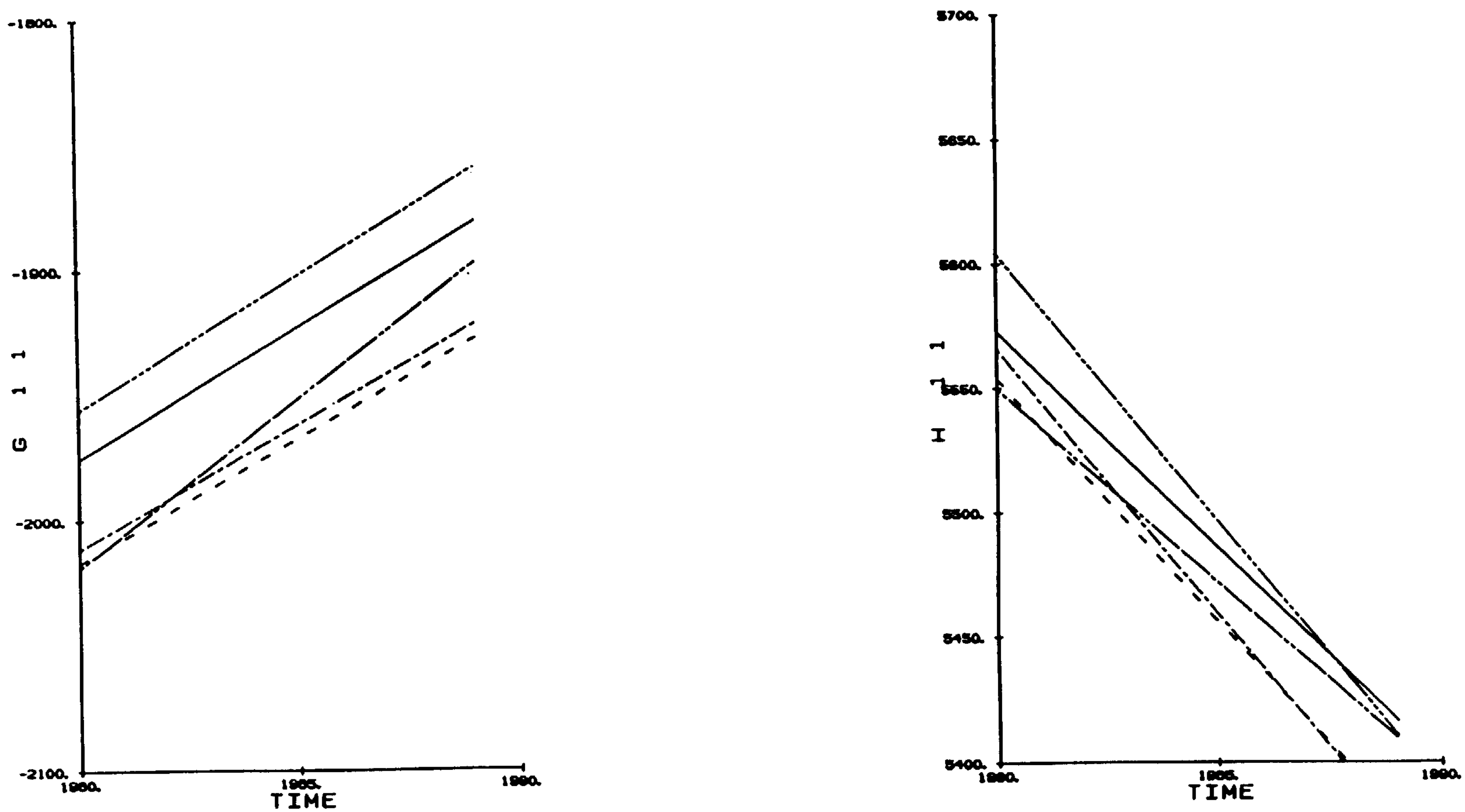
GSFC 4/89 & 5/89-4



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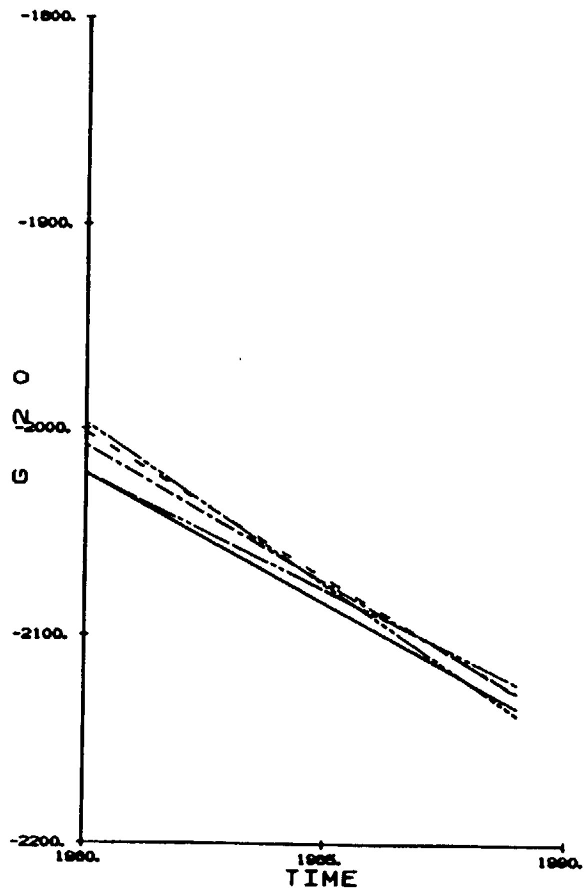

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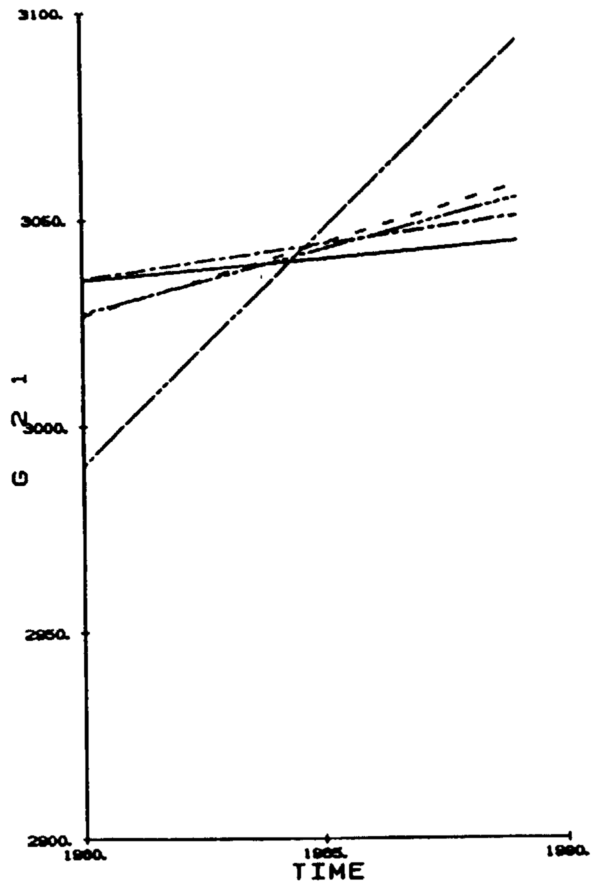

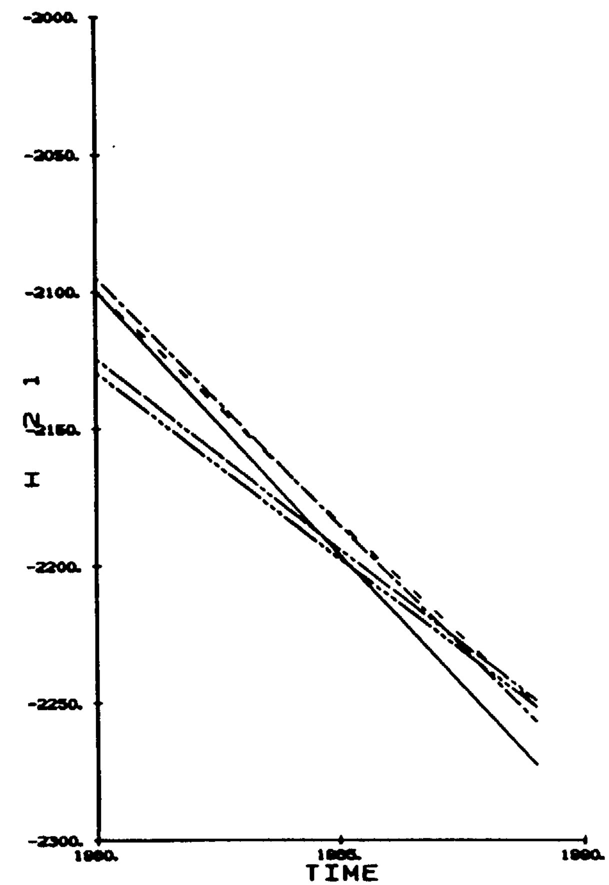

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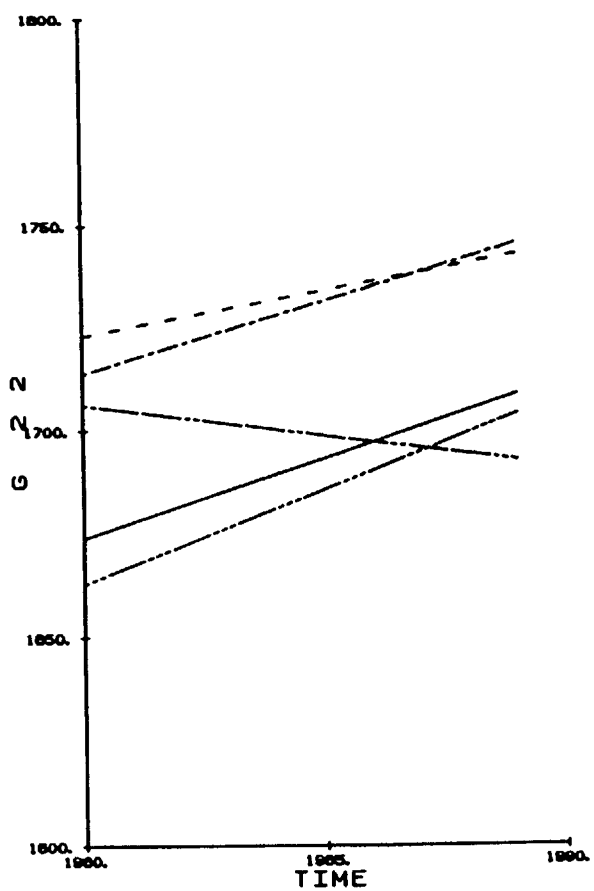

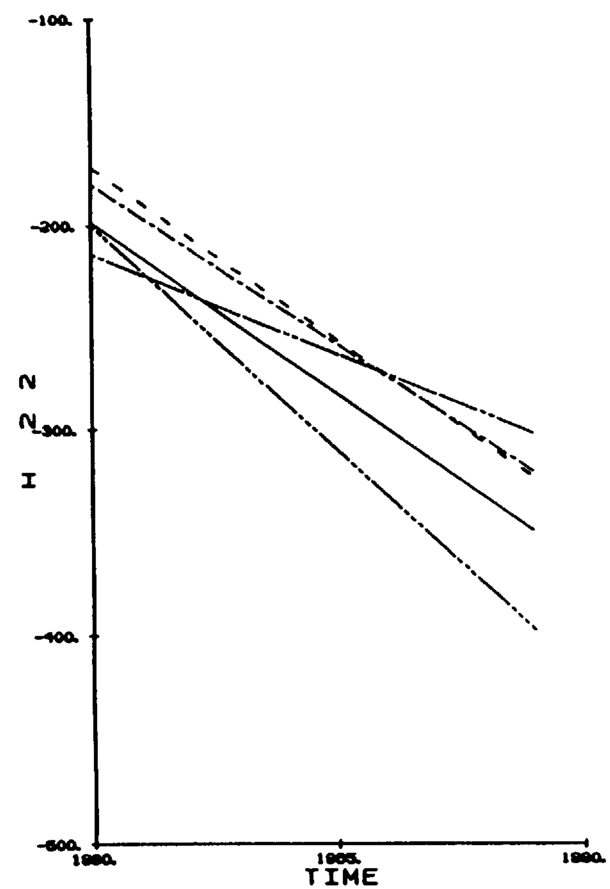

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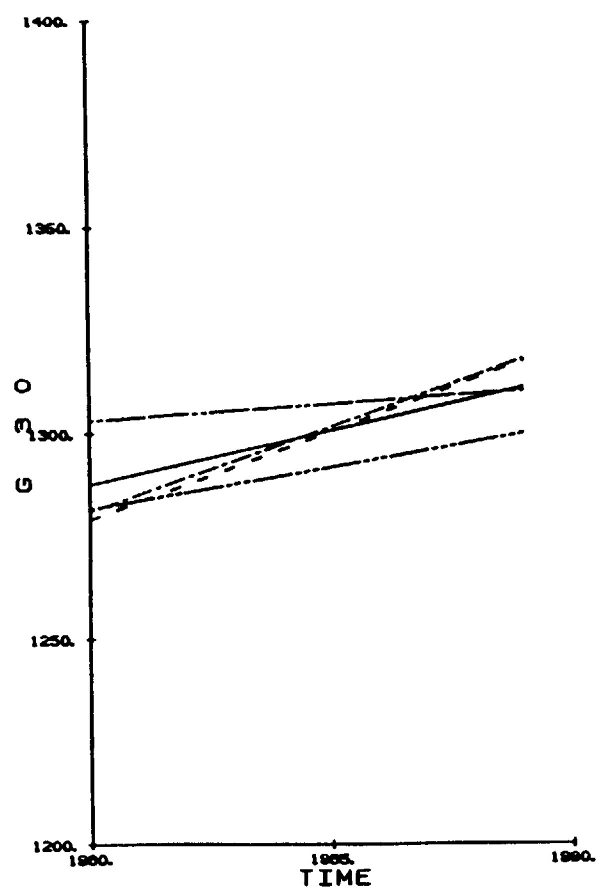

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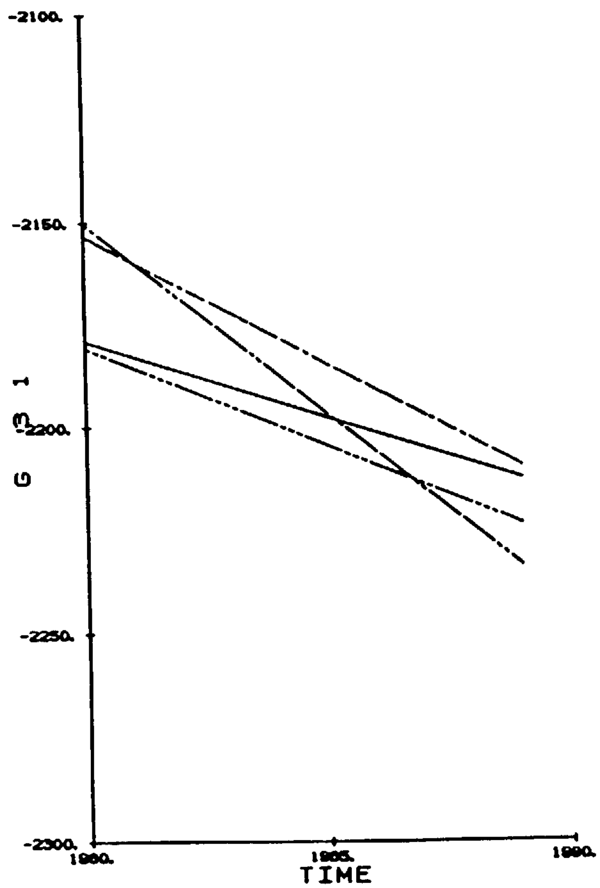

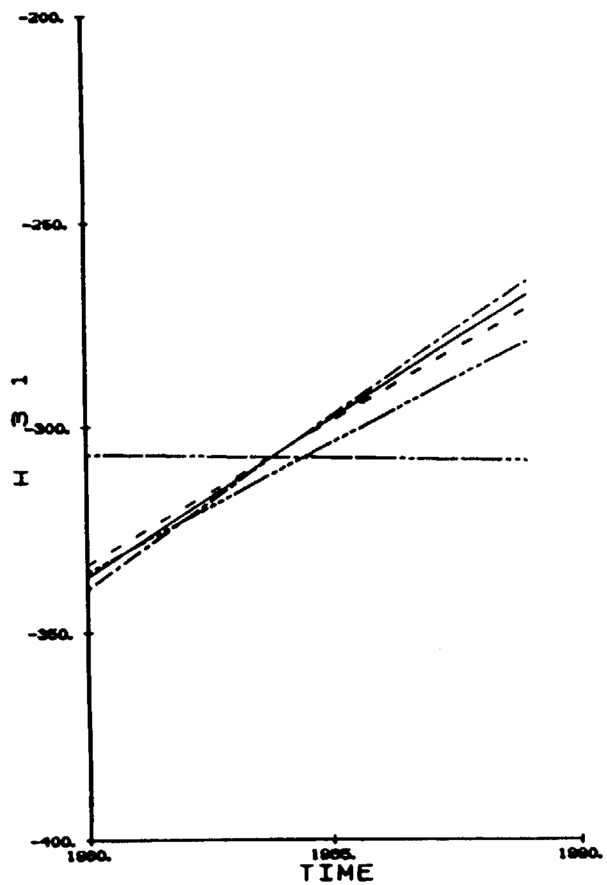

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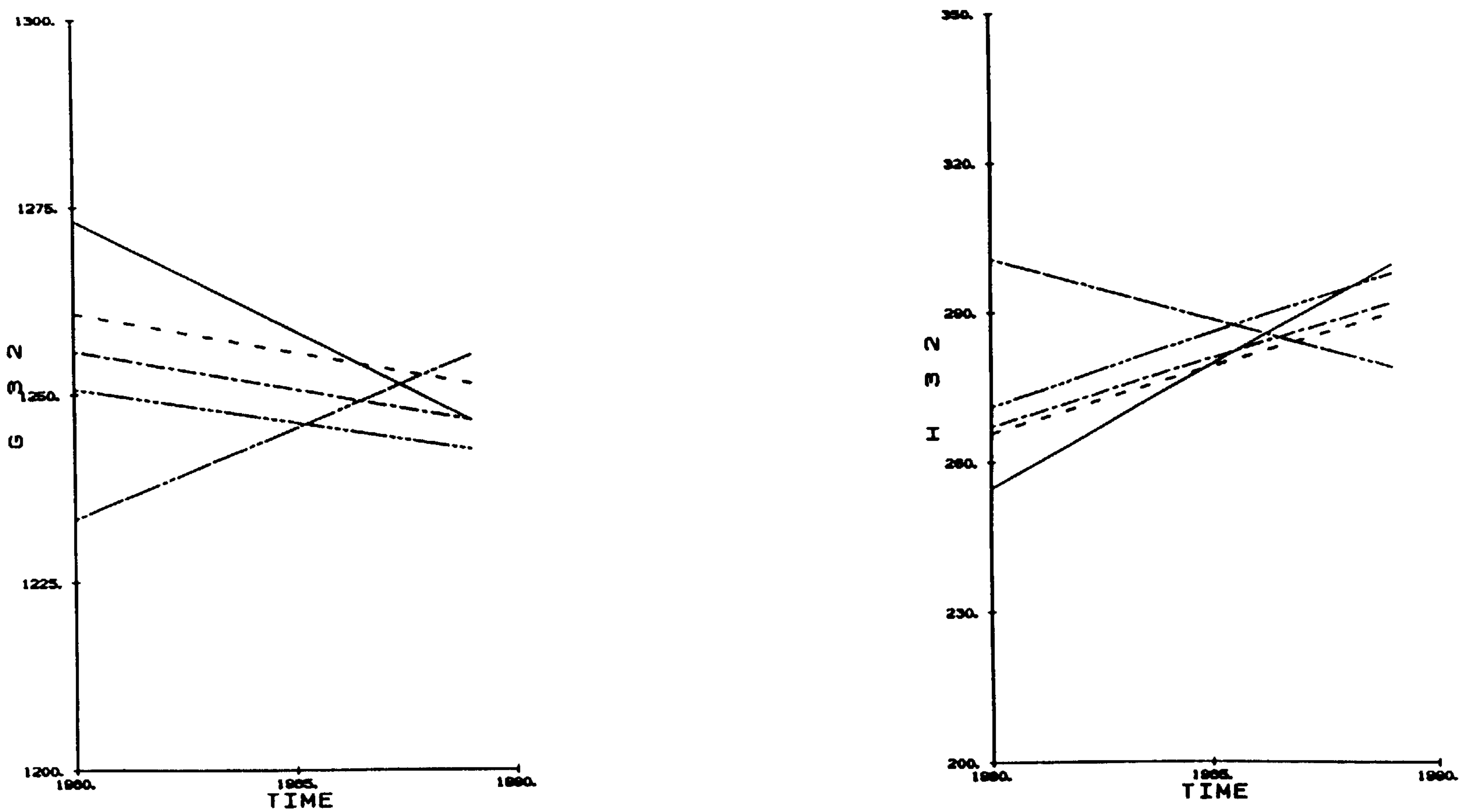
GSFC 4/89 & 5/89-4



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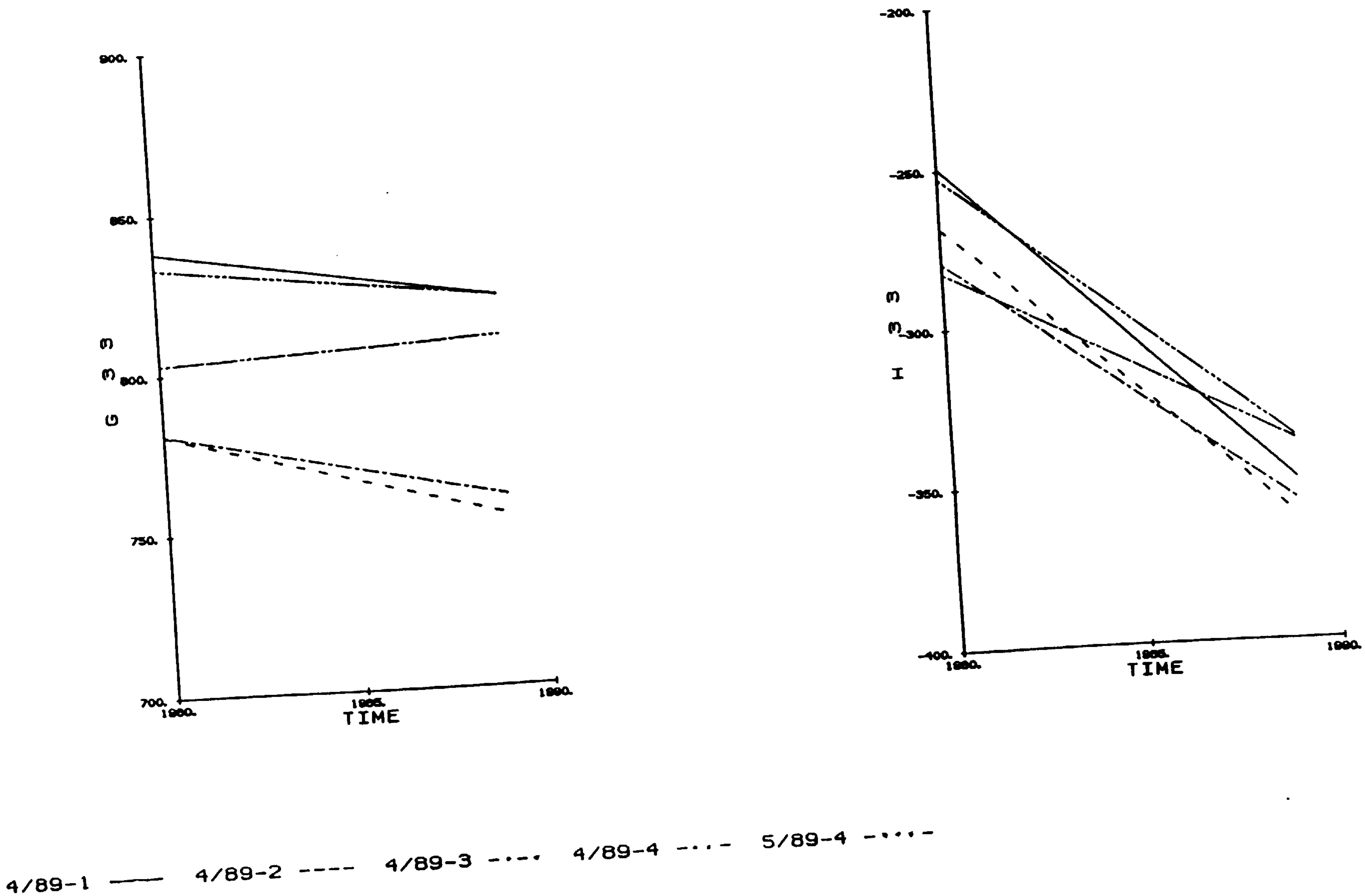
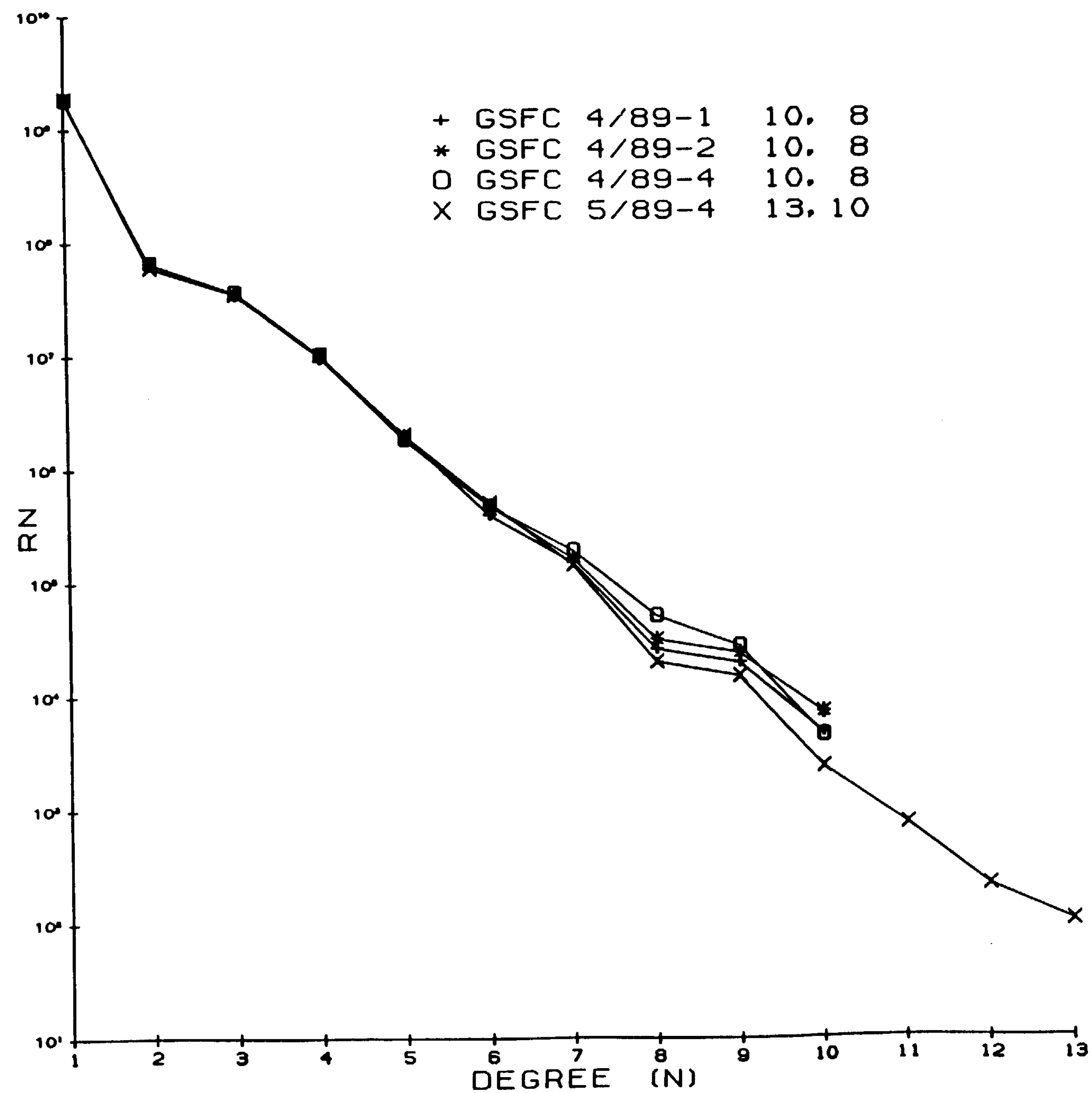
GSFC 4/89 & 5/89-4



GEOMAGNETIC FIELD SPECTRA



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R.A. Langel: NASA/GSFC, Greenbelt, Maryland, 20771.
T.J. Sabaka and R.T. Baldwin: ST Systems Corporation, Lanham, Maryland, 20785.

16. Abstract

Two suites of geomagnetic field models were generated at the request of Los Alamos National Laboratory concerning Strategic Defense Initiative (SDI) research. The first is a progression of five models incorporating MAGSAT data and data from a sequence of batches as a priori information. The batch sequence is: post-1979.5 observatory data, post-1980 land survey and selected aeromagnetic and marine survey data, a special White Sands (NM) area survey by Project Magnet with some additional post-1980 marine survey data, and finally DE-2 satellite data. These models are of 13th degree and order in their main field terms, and degree and order 10 in their first derivative temporal terms. The second suite consists of four models based solely upon post-1983.5 observatory and survey data. They are of degree and order 10 in main field and 8 in a first-degree Taylor series. A comprehensive error analysis was applied to both series, which accounted for error sources such as the truncated core and crustal fields, and the neglected Sq and low-degree crustal fields. Comparison of the power spectrum of the MGST (10/81) model with those of this series shows good agreement. Further, a comparison between the power spectra of the two series reveals the need for additional data (such as Magsat) to establish the baseline or static field, and the need for adequate model expansion to negate the effects of signal aliasing.

17. Key Words (Suggested by Author(s))

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Geomagnetics

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